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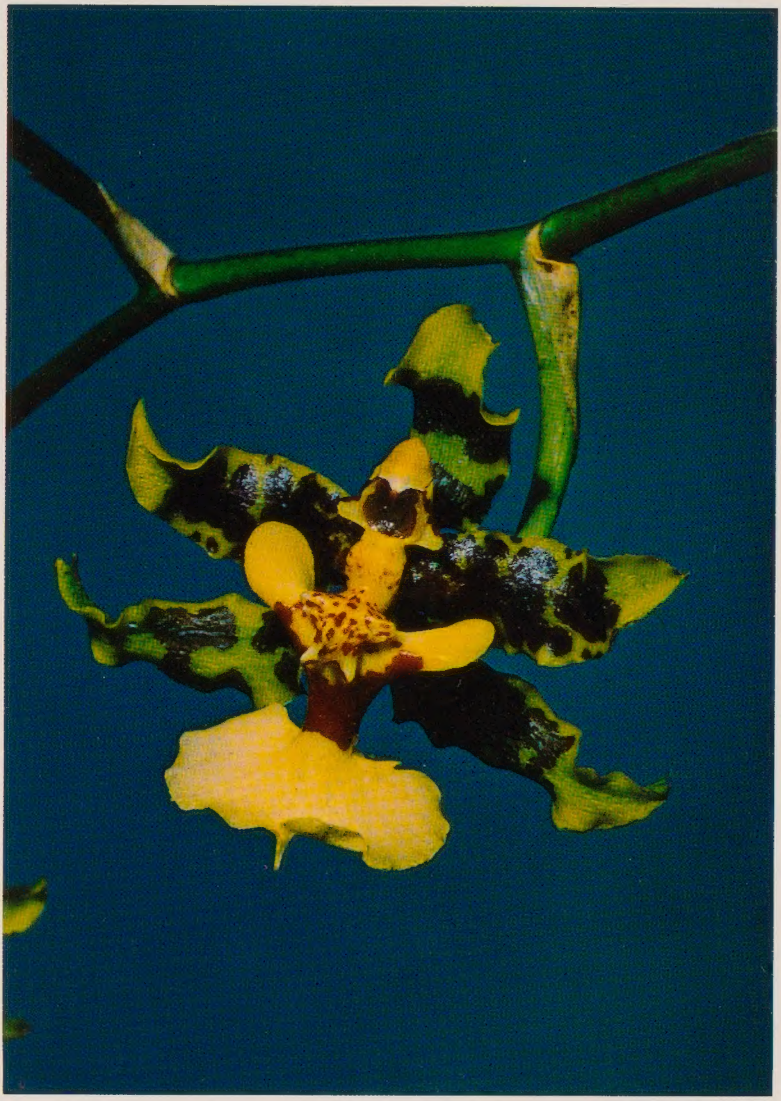

GILBERTO ESCOBAR-R.

Oncidium picturatum Rchb. f.

FLORA OF THE LESSER ANTILLES

Leeward and Windward Islands

BY

RICHARD A. HOWARD
Arnold Arboretum
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ORCHIDACEAE

BY

LESLIE A. GARAY and HERMAN R. SWEET
Orchid Herbarium of Oakes Ames
Botanical Museum
Harvard University

Arnold Arboretum, Harvard University
Jamaica Plain, Massachusetts

1974

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FOREWORD

Although our botanical libraries are well stocked with man's cumulative knowledge, there are tremendous gaps which are in an urgent need of attention. Since the time of the voyages of Columbus much botanical data has been assembled from the various islands of the Lesser Antilles. Yet, after almost five hundred years, a unified and comprehensive account of the specific components of the vegetation that flourishes on that chain of islands is still wanting. The launching of the publication of FLORA OF THE LESSER ANTILLES is aimed to fill this gap just before the last steadfasts of our natural vegetation succumb to the recklessness of man and his civilization.

The undertaking of the preparation of a definitive flora dates back to some twenty years involving both extensive field work, combined with exploration, and intensive research in herbaria. The documentation of these investigations is expected to be published in six volumes: such large plant groups as the ferns, the orchids, and grasses, each as an independent monograph.

The pattern of presentation provides a Key to Genera as well as a Key to Species within genera; both genera and species are typified, including the binomials which appear in synonymy. The list of synonyms under each species contains only those names which were described originally from the Lesser Antilles. Bibliographic references under each taxon likewise are only those of the Lesser Antilles, but references to monographs of genera are also included. For each genus and species a complete modern description is given which includes color as well as measurements of floral parts. The descriptions are followed by a list of geographic areas as General Distribution, as well as by a list of islands indicating the Distribution in the Lesser Antilles.

Much care has been given to include in this volume, as well as in the forthcoming ones, all known species reported from the Lesser Antilles. Information regarding omissions and new data pertaining to distributional records will be welcomed and much appreciated.

Richard A. Howard
Director, Arnold Arboretum
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Gift of Dr. Richard A. Howard 9.I.75

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INTRODUCTION

It can be safely said that no other plant family has received as much attention from the point of view of floristic surveys as has the *Orchidaceae* of the New World tropics. This is true, especially of the many Caribbean Islands, including both the Greater Antilles and the Lesser Antilles, which have been investigated not only collectively, but a number of them also individually. Because of the very nature of the investigations, from local checklists to comprehensive monographs, the preparation of such a floristic presentation as this study attempts to cover, requires the near impossible, namely retracing and rechecking the varied and often arduous roads our predecessors have traveled.

Although the original commitment to prepare this study dates back to 1957, it was not until now that our study could have been successfully completed, for most of the classical material upon which our first-hand information is based had to be consulted in person in sundry European and British institutions.

One of the most challenging aspects of the preparation of this floristic study was the typification of each generic name and specific epithet associated with it. As a natural consequence of typifications, time and again, unexpected but unavoidable nomenclatorial changes had to be initiated to replace well-known names. Yet the rigorous application of the type-method is the only available path known to us toward ultimate nomenclatorial stability.

Most of the new names or taxonomic changes in this study are intimately connected with the writings of early explorers, especially those by Plumier and Jacquin. These two students of the West Indian flora are noted for their excellent botanical illustrations as well as for the paucity or rather complete lack of corroborating botanical specimens of species which they had discovered for the first time. Today, their works must be consulted together, for it was Jacquin who for the most part applied the Linnaean binomial nomenclature to Plumier's polynomials. Although Jacquin's drawings are executed in unusually fine and careful details, the actual names attached to them by him reveal a rather superficial consultation of Plumier's plates when such pairs were pronounced taxonomically identical. Indeed the discrepancy or rather the lack of similarity between the illustrations cited by Jacquin and those of his own has been recognized by Swartz as long ago as 1791. He has noted that Plumier's drawing upon which *Epidendrum secundum* Jacq. was based is taxonomically identical with *Epidendrum anceps* Jacq. published three years later rather than with the drawings and descriptions given by Jacquin. Likewise, Swartz has also discovered that Plumier's figure of *Epidendrum ophioglossoides* Jacq. differs widely from the drawing and description of the same name given by Jacquin. Yet, neither Swartz nor anyone since that time have made any attempt to correct these obvious mistakes. To these examples we may add the case of *Oncidium altissimum* (Jacq.) Sw. When Jacquin established his *Epidendrum altissimum*, he based his description on Sloane's drawing and material from Jamaica which is still preserved in the British Museum. Sloane's specimen which we have studied is certainly very different from Jacquin's interpretation and drawing, a fact already acknowledged by Fawcett and Rendle in 1910, in their Orchids of Jamaica. Yet, for reasons unknown to us, they similarly, as did Swartz, preferred to perpetuate another old mistake by ignoring their own conclusions. In this study by applying the type-method to these and similarly neglected cases, we attempt to rectify some of the long-standing errors.

There are a few species listed in every floristic study, including this one, whose natural occurrence is rather doubtful in the area covered. Such records invariably owe their existence to specimens either taken from living collections or if collected in the wild have escaped from cultivation. *Chloraea Ulantha* Rolfe and *Cyrtopodium Andersonii* (Lam. ex Andr.) R. Br., both from St. Vincent, however, defy any explanation offered so far as to their presence in the Lesser Antilles. Many serious attempts have been made in the past to link up the identity of these two plants with some other members of their respective genera, but without any success. We strongly feel that *Chloraea Ulantha*, of which we have studied the holotype at the herbarium, Royal Botanic Gardens, Kew, is neither native to, nor indigenous in, St. Vincent, since the remaining members of the genus are all native to temperate South America. The fact that it has not been found anywhere in South America, however, compels us to recognize it, at least for the time being, as part of the flora of the Lesser Antilles.

Cyrtopodium Andersonii, of which only the original description with an excellent color plate and a single flower are known, is also awaiting a rediscovery. On account of its unicolored yellow flowers, this species has been repeatedly confused with three different species. Our efforts to identify collections from the entire American tropics with Andrews' publication in every instance have met with failure. Attractive as the original specimen must have been, judging from the excellent color plate, we can not help wondering if the species as a whole has succumbed to man's careless greed.

In orchid floras it is customary to include such introductory chapters as historical background of explorations, origin of flora, floristic relationships, list of collectors, to mention a few. Since our study is an integral part of a much larger, all-encompassing floristic survey of the Lesser Antilles these and other related topics will be dealt with separately by the author of the flora.

In conclusion we wish to call attention to the employment of two symbols. The exclamation mark, "!", placed after the collector's number cited with type specimens and after individual islands cited under "Distribution in Lesser Antilles" signifies that we have examined that particular specimen and that we have studied material from that particular island. The other symbol is the capital letters enclosed in parentheses, e.g. (AMES), which identify the institution where the actual type-material is kept, and the symbols are adopted from the 5th edition of Index Herbariorum.

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For the helpful and critical advice pertaining to nomenclatorial matters we are deeply indebted to our colleagues, Dr. Elizabeth Shaw and Dr. Rolla Tryon, both of Harvard University.

To our colleague and friend, Mr. G. C. K. Dunsterville of the Orchid Herbarium of Oakes Ames, we owe many thanks for his kind permission to use his superb drawings prepared from living material.

In no lesser degree are we appreciative of the manifold contributions of our secretary, Mrs. Ethel Giddings, whose persistent efforts in keeping our files up to date has materially contributed to the accuracy of this work.

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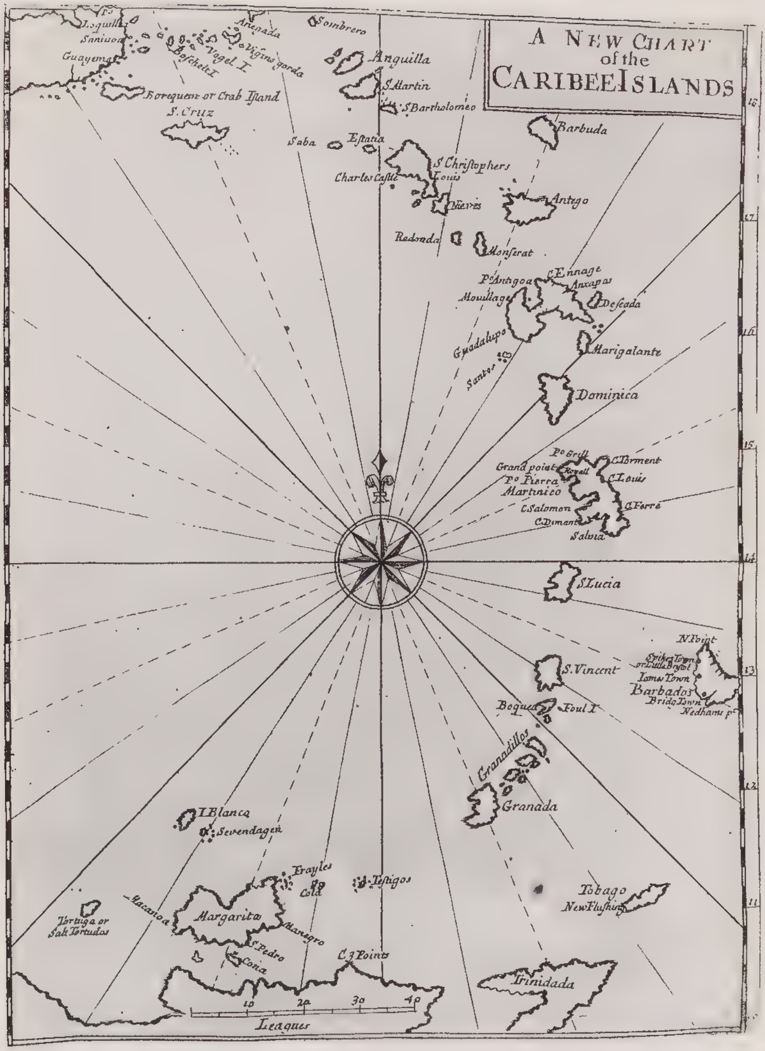

The LESSER ANTILLES
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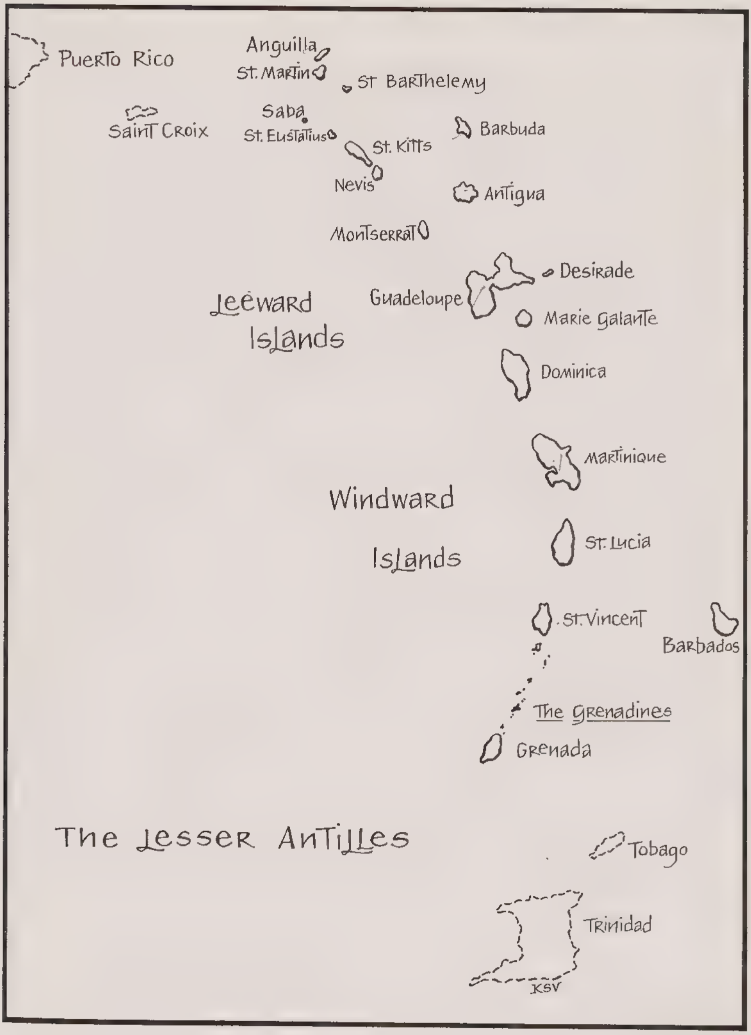


The Lesser Antilles. 1974

HISTORICAL AND EVOLUTIONARY PERSPECTIVES OF THE ORCHID FAMILY.

The *Orchidaceae*, one of the largest families of the plant kingdom, from the evolutionary point of view is the most advanced among the monocotyledons. There are perhaps between 30,000 and 35,000 species distributed in some 800 genera. They occur in every part of the globe with the exception of the two polar regions, attaining their highest diversification in morphology and concentration in the number of species in the tropics of both hemispheres. In the tropical regions most orchids are epiphytic in habitat preference, while in the temperate parts of the globe they are mostly terrestrial or rarely saprophytic. Very seldom are they subterranean saprophytes, completing the whole life cycle embedded in the soil. There are no parasitic orchids.

The term orchid is derived from the Greek word, *orchis*, due to the resemblance of the paired tubers of some European species to parts of the male reproductive anatomy. The name was first mentioned by Theophrastus (370–285 B.C.) in his "Enquiry into Plants", but the reference is too vague for any positive identification. It was Dioscorides, who, during the first century of the Christian era (*ca.* 77 A.D.), prepared a manuscript on materia medica, identifying Theophrastus' name with plants now referable to the orchid family. Of the few manuscript copies of the Dioscoridian treatise still extant, the famous CODEX NEAPOLITANUS, *circa* 640 A.D., is the earliest document to contain genuine descriptions and illustrations of orchids. Since Dioscorides' writings strongly influenced, if not completely dominated botanical thought well into the Renaissance, the belief in the supposed aphrodisiac properties of orchids based on the doctrine of signatures was lavishly copied, stated and exaggerated in many herbals and medical books of the 15th and 16th centuries. However, with the revival of western learning, such claims have been proven to be based on pure superstition.

Regarding the origin and early history of the family our information is very meager, for there are no undoubted fossil records, except *Protorchis monorchis* Massal. from the Eocene of Monte Bolca, Italy, and some undescribed pollen tetrads also dating from the Eocene, recently collected in Venezuela. Judging from the paucity of information, orchids either have eluded the process of fossilization, or if not, have escaped detection by man.

The family originated in the area known phytogeographically as Malaysia during the Cretaceous period when most of the angiospermous families became differentiated. At that time all species were geophytes for the epiphytic mode of life is a rather recent development, dating back to the Pliopleistocene. While the terms geophytic and epiphytic convey the meaning of ecological habitats, in reality they express distinct evolutionary adaptations through morphological modifications in the roots. In the terrestrial roots, which may be thin and fibrous or thick and fleshy, the epidermis consists of one to three rows of cells and the outermost row is provided with root hairs. In the derived epiphytic roots, the rows of epidermal cells are greatly increased in number into a spongy velamen with the outermost row cutinized and devoid of root hairs. Hence the structure of the root and not the place of abode differentiate these two types of evolutionary adaptations, the latter of which is also an evolutionary innovation.

There is no other plant family comparable in floral diversity to the *Orchidaceae.* The basic trimerous pattern, common to most monocotyledons, displays such a vast array of modifications that without serious study one could question the validity for calling them all orchids. Yet, all of the flowers have three sepals and alternating with them three petals, the unpaired one of the latter is greatly modified into a labellum or lip, an evolutionary adaptation mostly for a landing platform for pollinating insects. In the center of the flower, ordinarily occupied by the style and encircled by alternating rows of stamens, all orchids possess an unusual structure called the gynostemium or column. The column is also an evolutionary innovation, the result of fusion of the style with various stamens. Such a fusion must have occurred independently many times during the early history of primary differentiation or kladogenesis of the family, but only four lines have been carried through to the present. These four kladogenetic lines which have evolved in a parallel manner represent distinct subfamilies known as *Apostasioideae, Cypripedioideae, Orchidoideae* and *Neottioideae.* The plants referable to these subfamilies are all terrestrial. The epiphytic mode of life evolved through a secondary differentiation which occurred in the *Neottioideae* giving rise to a fifth subfamily, the *Epidendroideae.*

Concurrently with the development of the column two additional evolutionary innovations became operational. The first is the development of pollinia, in which the pollen grains at the time of maturity are shed either as free, single grains, or variously aggregated into tetrads or massulae. Each of these phases is very characteristic for a given subfamily. The manner by which the individual grains are united into tetrads or massulae is a unique feature of the orchid family, for the interfaces among the grains instead of becoming separated by an exine layer remain connected through cytoplasmic plasmodesmata. Because of this phenomenon cytogenetically deficient grains are brought to maturity, which in turn can affect fertilization. This condition is amply demonstrated by the occurrence of large aneuploid series, a source of variation, especially in the subfamily *Epidendroideae* and the more advanced members of the *Neottioideae.*

The kind of pollinia, that is, the stage of the aggregation of pollen grains, is the very factor that determines the size and spatial distribution of each species which in the subfamilies, *Apostasioideae, Cypripedioideae,* and *Neottioideae* is rather limited. However, in the final stage of evolution of pollinia into firm, compact massulae, which permits the pollinating vectors to carry them over great distances, did such spatially extensive populations appear as is the rule rather than the exception in the *Epidendroideae.*

Yet, the success of this mechanism in regulating as well as maintaining the population-size is closely tied in with the second additional evolutionary innovation referred to above, namely the alteration of one of the stigmatic lobes into a new organ, the rostellum. The rostellum produces either a viscous secretion or a viscous gland to which the pollinia are attached. In that it is a device ensuring successful cross pollination by firmly anchoring the pollinia to the vectors for transportation. This evolutionary modification is observable in the more advanced members of the *Neottioideae* and in the subfamily *Epidendroideae.* There is no rostellum in the subfamilies *Apostasioideae*, *Cypripedioideae* and *Orchidoideae.* It should be noted that the whole line of the *Orchidoideae* is composed of highly evolved species, so far without any trace or evidence documenting its origin and progressive differentiation from a lesser evolved stock.

In addition to anchorage, the rostellum also serves as a device to prevent self pollination. In a few species, however, if the flower is not visited by a pollinator, at the end of anthesis the rostellum dries up, thus allowing the pollinia to come into contact with the stigma which permits self pollination.

Orchids are pollinated by a large variety of insects, especially bees, flies, wasps, butterflies and moths, as well as by hummingbirds. Ordinarily the pollinator is species specific. Undoubtedly, cross pollination is merely a by-product of the insect's activity when attracted by a flower and stimulated to satisfy one of the ever-present dynamic urges of nature: hunger or sex. While the flowers of most orchid species provide either nectar or edible tissue as an attractant for the visiting insect, there are a few which successfully mimic the female species of the pollinator, and thus attracting them sexually. This unusual orchid-insect association which results in pseudocopulation, is a relatively recent addition to our knowledge of orchidology, yet the phenomenon itself must be of long standing in the evolutionary history of the family. Although in the annals of orchidology a large number of descriptive cases of individual pollinating mechanisms are recorded, the value of these observations and their evolutionary implications will be first understood when the mutual coaptations between the flowers and insects and their reciprocal modifying influence on their evolution are convincingly demonstrated.

The evolutionary innovations discussed above, and their mutual interactions to a large extent explain the present-day diversity within the family. However, the dispersal of sundry orchid diaspores has played an equally important role in bringing about this diversity, especially when it was followed by some type of isolation. The common isolating barriers among orchid species are physiological, ecological, ethological or geographic and relatively seldom genetic. This observation is corroborated by literally thousands of artificial hybrids, often between remotely related species, as well as by the occurrence of natural hybrids. The relative frequency of natural hybrid populations of orchids in the subfamily *Epidendroideae* is an additional indication of the rapid evolutionary expansion that took place within a less rigid framework than would be possible with genetic incompatability as a controlling force. Hybridity whether natural or artificial can occur only with a given subfamily. The lack of genetic compatibility between species belonging to different subfamilies, even in artificially attempted crosses, seems to support the thesis that the kladogenetic differentiation into five subfamilies indeed must have taken place shortly after the family came into existence.

Closely associated with the initial kladogenetic differentiation of the orchid family is its early expansion and global dispersal. Continental distribution patterns are usually intimately associated with the geologic, climatic and edaphic history of a given area, hence their explanation is rarely problematic. Transoceanic dispersals, on the other hand, are more perplexing, for the causes often are hidden in the dim evolutionary past of our biosphere.

There are approximately 800 genera recognized in the orchid family, and of these only 32 can now be identified as being involved in some kind of oceanic distribution. It is significant that 27 of the 32 taxa, i.e. 85%, are genera whose members are exclusively terrestrial. Epiphytic orchids are less habitat-specific in the microenvironment than terrestrials, yet we know only two such genera, *Bulbophyllum* and *Polystachya*, with pantropical range. This situation, however, does not suggest that terrestrials are more effectively dispersed than epiphytes; it merely indicates that the initial transoceanic expansion must have taken place shortly after the family became established and before the epiphytic mode of life evolved. Since all of the early species were terrestrials, the transoceanic dispersal of epiphytes ,although following the same route as the terrestrials did, was of much later occurrence. The necessity of mycorhizal association is a well-known factor in orchids, but this association is not species-specific. This requirement is more readily met in soil conditions where an ample supply of decaying organic matter is available than on exposed branches of trees. Hence, this is another conributing factor accounting for the rather sparse transoceanic dispersal of epiphytes.

Orchid genera, whether restricted to adjacent continents or pantropical in range, have the origin of their phyletic affinities in Malaysia; this center of origin must not be confused with the actual center of distribution, since the two types of centers may not be identical. In general the migratory expansion or dispersal proceeded from an easterly to westerly direction from Malaysia-India-Madagascar-Africa to Africa-South America. The exception to this is the transpacific route between Malaysia and South America as exemplified by the genera *Tropidia* and *Erythrodes*.

The migratory routes through which the various orchid dispersals were accomplished are amply documented in the pages of phytogeographical literature. They rather convincingly demonstrate that dispersals took place via oceanic routes by island hopping rather than through supposed continental highways. There is no definite evidence that land connections of a continental nature were in existence during the Tertiary, when most of the transoceanic dispersals took place. Furthermore, geomorphological and oceanographic evidence indicates that the earth is in a constant flux and was even more so in the past. The subsidence of the ocean floor and the fluctuation of the sea level during various geological periods, combined with orogenic activities in the earth's crust, have provided time and again favorable avenues between continents for transoceanic dispersals by means of 'island hopping'. In addition to these factors, wind currents have also played an important role in transportation of orchid diaspores. In that, the 'intertropical convection current' (doldrums) must have at least partially aided the realization of transoceanic distributions, for the observed distribution patterns of orchids, especially that of *Liparis nervosa*, and that of the intertropical convection current coincide remarkably well.

PHYTOGEOGRAPHY AND FLORISTIC RELATIONSHIPS

RICHARD A. HOWARD

The West Indies comprise three distinct groups of islands: the Bahamas, including the Turks and Caicos; the Greater Antilles — Cuba, Hispaniola, Jamaica, Puerto Rico, and the Virgin Islands; and the subject of this work, the Lesser Antilles. Exposed land surfaces cover a distance of 1,700 miles from Barbados on the east to the western tip of Cuba. The distance from Grenada in the Lesser Antilles to the northern tip of the Bahamas is 1,200 miles. Politically, the islands are either independent nations or variously associated with each other and with distant countries, as England, France, The Netherlands, or the United States.

Geologically, the West Indies are extremely complex and poorly understood; and there are many conflicting opinions on the history of their development and the dates of various geologic events that formed them. The islands of the Lesser Antilles represent two facies: one, a young, eruptive chain with volcanism, soufrières, and earthquakes of frequent and current occurrence; the other, exposed limestone formations or elevated coral reefs. Aves Island is the only exposed portion of the ancient Aves Ridge extending north and south. Barbados likewise is geologically independent of the Lesser Antilles, being an exposure on the submerged Barbados Ridge connecting with Trinidad, Tobago and South America. Le Desirade is considered to be the oldest exposure and is associated with the Greater Antilles. The Lesser Antilles themselves represent a Y-type exposure (see map), with volcanic islands forming the base and the western arm from Grenada to Saba, while the eastern arm from Marie Galante and the Grande Terre portion of Guadeloupe, extending northward to Sombrero, represents limestone facies. (A. A. Meyerhoff and H. A. Meyerhoff. Jour. Geol. 80: 34–60. 1972.) Traditionally, the islands have been recognized as the northern Leeward group and the southern Windward group. Approximately twenty-nine islands of the Lesser Antilles are populated, while an uncounted number of smaller, dry, partially vegetated or wave-washed rocks are within the Lesser Antillean arc.

Climatically the Lesser Antilles lie within the tropical zone and have been affected by hurricanes arising in the South Atlantic. Available temperature and rainfall records mean little since, with few exceptions, the recording stations were originally at low elevations in agricultural zones. More recently the records have been obtained at airports built in coastal locations on formerly cultivated fields. Average temperatures are given as 78°–79° F., while mountain stations on Martinique and Guadeloupe report average temperatures at 71°–74° F. A station on Dominica reported a recent range of temperature from 58° to 92° within a year. The official rainfall amounts also show a considerable range: Antigua, 22 inches; Dominica, from 52 to 83 in successive years; St. Vincent, an average of 100 inches; while a high mountain station on Martinique recorded 207 inches in one year. The records do not reflect accurately the great variation within the area of an island from the arid conditions on small islands or windward coasts to the humid, cloud-covered zones at the summits of the mountains. Guadeloupe and Martinique both have mountains of 4,800′ elevation, while the highest point in the archipelago is Morne Diablotin on Dominica, recorded at 5,200′ above sea level.

Agriculture was once the basis of the economy of the area in such crops as sugar cane, cotton, citrus, cocoa, nutmeg and other spices. With improved transportation to and between the islands, a major development of tourism has changed the economic base of many of the islands.

THE VEGETATION

Botanical observations on the plants of the Lesser Antilles date from the time of the voyages of Columbus. However, no single flora has ever been prepared. The Dutch islands have been studied by Boldingh, and a more recent flora was begun in Holland. Père Duss, in his "Flore Phanérogamique des Antilles Françaises," published a comprehensive list of the plants of the French islands in 1897, and Stehlé's many papers represent an uncompleted contribution of more recent times. Grisebach (Flora of the British West Indies 1859–1864) considered only the British colonies in the area, including Jamaica and Trinidad-Tobago with those of the Lesser Antilles. This volume represents the first family treatment of a comprehensive *Flora of the Lesser Antilles*, to include those islands from Sombrero and Saba south to, and including Grenada.

Descriptive ecological studies of the area are best represented by the work of John Beard (Natural Vegetation of the Windward and Leeward Islands. Oxford For. Mem. No. 21. 1949; Classification of tropical American vegetation-types. Ecology 36(1): 89–100. 1955.), who recognized 28 categories in the major groupings he adopted of optimum forest, seasonal formation, dry evergreen formation, montane formation, seasonal-swamp formation, and swamp formations. Not all of his study, which concerned tropical America, applies to the Lesser Antilles. Stehlé (Forest types of the Caribbean islands. Caribb. For. 6 (suppl.): 273–408. 1945.) considered only the forest types of vegetation in the French islands, which he grouped as mangrove, xerophytic, mesophytic, hygrophytic and altitudinal forests. A combination of geographical location and ecological factors would allow recognition of the following units which will be described briefly.

Coastal formations:
- Beach
- Strand
- Rock pavement
- Mangrove

Lowland formations:
- Thorn scrub
- Savanna-grassland
- Marsh or swamp

Montane formations:
  Wet or dry forests on limestone
  Montane sclerophyll
  Palm brakes
  Tree fern communities
  Volcanic-soufrière communities
  Crater lakes
  Elfin thickets

Coastal formations

BEACH. The tourist attraction, the sandy beach, may be of black sand (volcanic) or white sand (coral). The plants on the beaches are few, herbaceous, commonly fleshy, often trailing as vines. *Ipomoea*, the beach morning glory, and *Canavalia*, a beach pea, predominate, while *Cenchrus*, the sand spur, is abundant. Drift seeds and fruits may be found along the edge in tidal debris, and many of these are South American in origin.

STRAND. Inland from the sloping beach, dunes or ridges may be built up. Shrubs and small trees predominate in such areas, with the sea grape (*Coccoloba* spp.), icaco (*Chrysobalanus* sp.), most common, and *Scaevola Plumieri*, *Suriana maritima* and *Tournefortia gnaphalodes* abundant. The latter three are among the plants of strand areas with unusual morphology or unusual geographic distributions. The manchineel, *Hippomane mancinella*, a very poisonous plant, was once abundant in strand areas, but because of its toxicity, man has removed this tree from areas most frequented by tourists.

ROCK PAVEMENT. Such areas are usually elevated coral reefs of hard or soft limestone, often eroded into sharp surfaces, or pitted with solution sink holes of varying sizes. Succulent herbaceous species and low shrubs dominate such areas. Many of the plants may have spines or thorns.

MANGROVE. Although four plants, called red mangrove, white mangrove, black mangrove and button mangrove, are found in the Lesser Antilles, the red mangrove, *Rhizophora mangle*, is the conspicuous plant of shallow salt water having arching adventitious roots. It is generally found on leeward coasts in sheltered embayments.

Lowland formations

THORN SCRUB. As the name implies, the plants found in this area are well protected with thorns or spines on the stems, or with modified spine-tipped leaves. Members of the Leguminosae (*Acacia*, *Calliandra*, *Pithecelobium*), Cactaceae (*Opuntia*, *Cereus*, *Mammilaria*), Rubiaceae (*Guettarda*, *Psychotria*, *Randia*) and Euphorbiaceae (*Croton*, *Jatropha*) predominate. The vegetation is usually dense, although not tall, and on windward slopes the plants are commonly distorted by the prevailing winds.

SAVANNA-GRASSLAND. The lower limestone islands of the Leeward group have the most examples of grasslands-savannas within the Lesser Antilles.

Introduced species of *Acacia* or *Prosopis*, both legumes, may be scattered in such open areas, offering shade for grazing cows and goats.

MARSH OR SWAMP. The most extensive marsh or swampland in the Lesser Antilles is found in the Grande Terre section of Guadeloupe. The so-called saw grass (*Cladium jamaicense*, Cyperaceae) may dominate many of these areas. Old abandoned salt ponds on some islands have become swampy regions vegetated by fleshy stemmed herbs and shrubs. The high salinity of such swamps contrasts with the fresh water marshes and determines the plant species that are present.

MONTANE FORMATIONS

WET OR DRY FORESTS ON LIMESTONE. Because of the soil type, the vegetation of limestone areas differs from that of comparable elevations on volcanic islands. These forests may be seasonal; that is, the leaves are lost during dry periods, and flowering is usually associated with the onset of a rainy season. The dry mountain tops of the Grenadines, for example, may have forests of species of *Bauhinia*, *Bourreria*, *Casearia*, *Coccoloba*, *Colubrina*, *Lonchocarpus*, *Spondias* and *Tabebuia*. Such plants may be colorful when flowering in leafless condition, and the developing foliage following flowering may also be pigmented.

MONTANE SCLEROPHYLL. The larger volcanic islands appear well wooded at higher elevations, but the amount, quality and usefulness of the timber is deceptively small. These forests have a primary value as a watershed area and, in principle, are protected from even selective cutting. The trees do not lose their leaves en masse, and conspicuous flowering of the plants does not occur. Stehlé listed 175 genera and 385 species of trees in such broad-leaved forests. The building timbers of the colonial period, bullet (species of the Sapotaceae) for example, were cut in such forests, and few large specimens remain today. Although frequently called "rain forests" locally, these are not comparable to the rain forests of South America or tropical Asia. The Lesser Antillean forests may have a broken canopy, a stratified lower vegetation, and good representation of herbs on the forest floor. Ferns and epiphytes may be abundant.

PALM BRAKES. Many kinds of palms occur in the Lesser Antilles in montane forests near the mountain summit, characteristically on ridges or in valleys, often on landslides and on unstable soils. Following the destruction of forests by hurricanes, palms may form the dominant stand of vegetation for a relatively short period of time. Palm brakes illustrated by Beard in the 1940's are today less conspicuous due to the growth of hardwood trees. Monkeys which have escaped on several of the islands of the Lesser Antilles may be seen or heard most frequently feeding in the palm groves.

TREE FERN COMMUNITIES. Groves of tree ferns with sizable trunks and stature occur on many islands in small stands. Their development in such areas and as pure stands is not understood, for the plants usually occur on unstable soil, and their growth rate is very slow. Nevertheless, broad-leaved plants more vigorous in growth do not compete with the tree ferns. Some species have trunks of persistent old spiny leaf-bases, while others are nearly smooth. The rosettes formed by the crown of long leaves can be most attractive in silhouette.

VOLCANIC AND SOUFRIÈRE COMMUNITIES. The eruption of Mt. Pelée in 1902 remains as the example of the most destructive volcanic activity in the West Indies. In 1971, the Soufrière on St. Vincent, which also erupted in 1902, became active and formed a new lava cone in the center of the deep summit crater lake. The sulfurous boiling mud lakes of St. Lucia, also known as the Soufrière, are continuously active. Similar examples of subterranean heat reaching the land surface are found on islands from St. Kitts and Montserrat to Grenada. The lava cinder eruptions of 1902 completely covered or destroyed vegetation on parts of Martinique and St. Vincent. The fumes from the vents and lakes currently active affect the adjacent vegetation, selectively destroying some plant species, and permitting others to be re-established in dormant periods. Representatives of familiar plants groups, *Philodendron*, *Anthurium*, *Lycopodium* (club moss), *Pteridium* (bracken fern), and the bromeliad, *Pitcairnia* tolerate these acid-fume environments. The 1972 eruption of the Soufrière on St. Vincent resulted in the death of plants on the crater walls when the heated lake waters rose and covered the plants. No signs of fume damage are evident.

CRATER LAKES. With the cessation of volcanic activities, the craters of formerly active volcanoes have settled, often forming crater lakes. At sea level, some of these former craters may be represented by very deep harbors, as at St. George's on Grenada. At higher elevations, a volcanic orifice with a complete rim may contain an attractive crater lake (Soufrière on St. Vincent, Grand Etang on Grenada), while other mountain summits with fractured rims or crevices contain no lakes. With time the crater lake may fill in with grasses and sedges, and eventually woody plants, forming a marsh or bog. The summit slopes, inside and outside of the crater rim, often have a stunted and characteristic vegetation, ranging from hygroscopic lichens and liverworts on new cinders to altitudinal forests on older substrata.

ELFIN THICKETS. The short-statured, dense vegetation at the summit of the higher mountains has been termed an elfin or mossy forest, or thicket. Many factors appear to be involved in the persistence of this type of vegetation. Soils are generally continuously moist and infertile, without an accumulation of humus; rainfall may be near 200 inches; a cloud cover may reduce the amount of sunlight and add to the measured rainfall. Winds may be strong and continuous, thereby "pruning" the vegetation; reproduction rates of component plants may be reduced and competition between species may be selective. In short, some species of plants will grow better under these conditions than others. Being remote, unpleasant areas in which to camp or make field observations, few elfin thickets have been the subjects of detailed studies, and such studies are needed.

Agricultural lands

To these recognized units of vegetation must be added agriculture in the Lesser Antilles, involving cultivated herbs and root crops, shrubs and trees grown by man at various elevations. The "cut and burn" type of agriculture familiar in the tropics exists in the Lesser Antilles, and the low fertility of the soil permits only a few crops, after which the land may be abandoned. The number and types of weeds, in areas of active as well as discontinued cultivation, are many, and most such plants are pantropical in their distribution.

Some of the cultivated plants may have been of pre-Columbian introduction, brought in by migratory people from South America. However, few areas of the world have had as many botanical gardens or as active a program of plant introduction. The most famous attempt at plant introduction into the Lesser Antilles was the effort to introduce the breadfruit which culminated in the mutiny on the Bounty before a second expedition was successful. Forestry plantings can be found well maintained or only as abandoned examples of man's good intentions. Evidence of a nineteenth-century attempt to grow rubber-producing trees in the Lesser Antilles can be found in the scattered latex-producing species, once introduced from South America and Africa, now persisting in montane formations. Botanical gardens did exist on most of the major islands, and plants from distant areas were introduced. Some of these escaped and have persisted. The Botanic Garden of Saint Pierre, Martinique, was destroyed in the eruption of Mt. Pelée, while some botanical gardens remain more as parks than as active plant introduction stations.

Origin and Distribution of the Vegetation

Garay and Sweet (see above) have summarized the historical and evolutionary perspectives of the orchid family, noting that it was one of the largest families of the plant kingdom, and one of the most advanced morphologically among the monocotyledons. This family of between 30,000 and 35,000 species is distributed into some 800 recognized genera, and occurs in every part of the globe except the two polar regions. The highest degree of diversification and concentration occurs in the tropics where orchids are found both as epiphytic and terrestrial plants.

The vegetation of the Caribbean periphery, i.e., Central America, the

Greater Antilles, the Lesser Antilles and northern South America, presents a complex series of patterns of generic distribution (Howard, Vegetation of the Antilles, in "Vegetation and Vegetational History of Northern Latin America," A. Graham, ed. Elsevier, 1974.) The present study, the Orchidaceae of the Lesser Antilles, offers the opportunity of an analysis of one family at the specific level. Within the Lesser Antillean flora, as presented in this book, are 44 genera and 141 species of orchids. The largest genus, *Epidendrum*, comprises 25 species, while 21 genera have but a single species in the area. There are no monotypic or endemic genera of the Orchidaceae in the Lesser Antilles. The terrestrial habit is found in 25% of the species, while 75% of the species are either epiphytic or lithophytic. *Wullschlaegelia aphylla* is the most unusual species, being a leafless, chlorophyll-less saprophyte, reported as very rare in Jamaica and Cuba, found several times only on Dominica in the Lesser Antilles, but occurring frequently from Guatemala to Brazil and Paraguay.

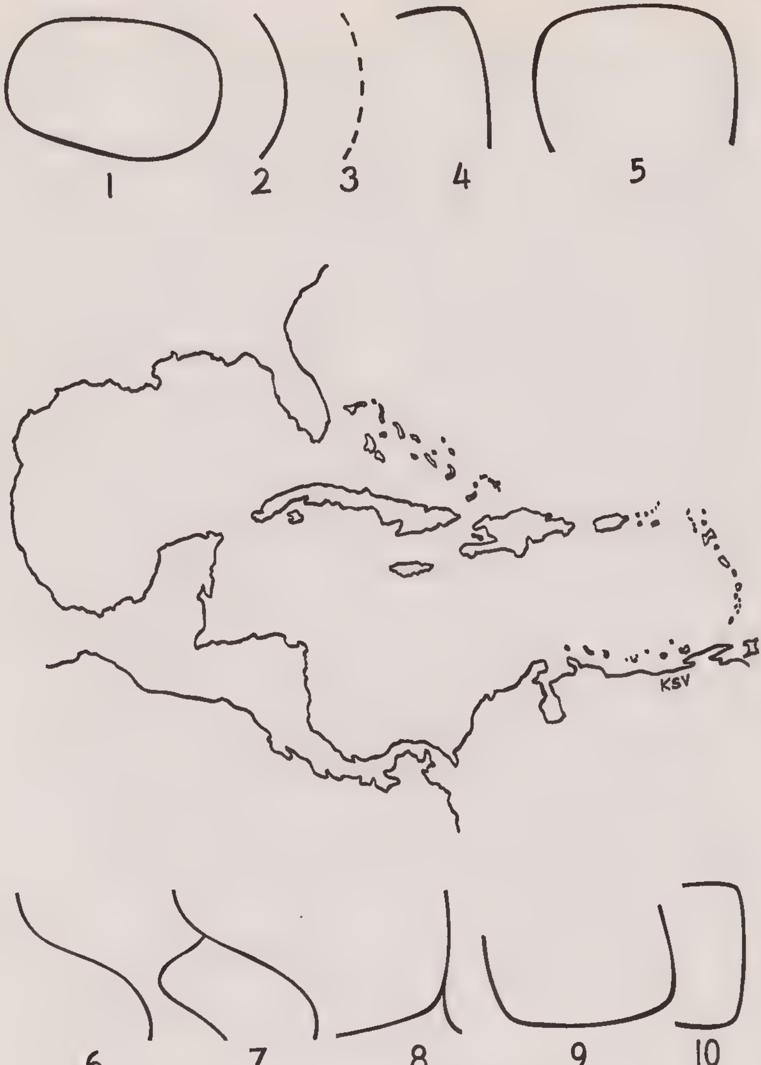
No attempt has been made, in this study, to include the taxa of *Orchidaceae* cultivated in botanical gardens or assembled in private collections when these exotics are clearly known as such. A few of the records, however, are difficult to interpret from the ancient data available. *Maxillaria meridensis*, occurring in South America, has been recorded from Guadeloupe, and may represent a possible escape from cultivation. The widespread *Epidendrum cochleatum* likewise is represented by a single collection. *Cyrtopodium Andersonii* and *Chloraea Ulantha* represent species collected only once in St. Vincent, but other species of these genera are known from South America. Both type-specimens were collected without explicit data by former superintendents of the St. Vincent Botanical Garden. *Vanilla planifolia* is represented both by specimens from plants under cultivation and by those wild or escaped, although the genus is also represented by non-cultivated species including those that are endemic. In contrast to other families, no weedy species of orchids occur within the Lesser Antilles.

The species of orchids in the Lesser Antilles can be determined as having ranges from a general distribution around the Caribbean, pan-Caribbean, to single island endemics in ten patterns of distribution (see map). A few examples of each will suffice to illustrate the patterns given for the various species.

1. PAN-CARIBBEAN species with extensive to restricted distribution in the Lesser Antilles: *Brassavola cucullata, Campylocentrum micranthum, Elleanthus longibracteatus, Isochilus linearis, Jacquiniella teretifolia.*

2. ENDEMIC IN THE LESSER ANTILLES, but occurring on more than one island: *Elleanthus Dussii, Epidendrum patens, Oncidium Jacquinianum, Stelis scabrida.*

3. SINGLE ISLAND ENDEMICS. Guadeloupe (6 species): *Brachionidium Dussii, Epidendrum Mutelianum, Maxillaria guadalupensis, Pleurothallis*



Patterns of distribution in the Lesser Antilles

1. Pan-Caribbean. 2. Endemic in the Lesser Antilles. 3. Single island endemics. 4. Greater Antilles — Lesser Antilles. 5. Central America — Greater Antilles — Lesser Antilles. 6. United States — Greater Antilles — Lesser Antilles. 7. United States to Central America, and to Greater Antilles — Lesser Antilles. 8. South America north to one or more islands in the Lesser Antilles. 9. Central America, northern South America and northward onto the Lesser Antilles. 10. Greater northern South America and northward into the Lesser Antilles. 10. Greater Antilles — Lesser Antilles — northern South America.

Dussii, Pseudocentrum guadalupense, Stelis Dussii. Dominica: *Epidendrum discoidale.* Martinique: *Vanilla Pléei.* St. Vincent: *Chloraea Ulantha, Cyrtopodium Andersonii.*

4. GREATER ANTILLES — LESSER ANTILLES with a diminishing range southward: *Bletia patula, Brachionidium Sherringii, Cranichis ovata, Maxillaria coccinea, Oncidium Wydleri, Pleurothallis Wilsoni, Ponthieva petiolata, Stelis perpusilliflora.*

5. CENTRAL AMERICA — GREATER ANTILLES — LESSER ANTILLES: *Habenaria eustachya.*

6. UNITED STATES — GREATER ANTILLES — LESSER ANTILLES: *Tetramicra canaliculata.*

7. UNITED STATES TO CENTRAL AMERICA, AND TO GREATER ANTILLES — LESSER ANTILLES: *Habenaria odontopetala, Spiranthes polyantha.*

8. SOUTH AMERICA NORTH TO ONE OR MORE ISLANDS IN THE LESSER ANTILLES: *Dichaea Hookeri, Elleanthus Caravata, Hexadesmia Dunstervillei, Maxillaria meridensis, Oncidium picturatum, Ornithocephalus gladiatus.*

9. CENTRAL AMERICA, NORTHERN SOUTH AMERICA AND NORTHWARD INTO THE LESSER ANTILLES: *Pleurothallis memor, Polystachya foliosa, Reichenbachanthus reflexus, Scaphyglottis prolifera, Spiranthes acaulis, Vanilla Wrightii.*

10. GREATER ANTILLES — LESSER ANTILLES — NORTHERN SOUTH AMERICA: *Campylocentrum pygmaeum, Corymborkis flava, Dichaea Swartzii, Ionopsis satyrioides, Oncidium Leiboldii, Scaphyglottis modesta* and *Xylobium pallidiflorum.*

Few of the orchids of the Lesser Antilles have showy or conspicuous flowers. A few can be described best as minute, and these are often hidden from general view being under the larger leaves. Orchids will be rare in the coastal and lowland formations, but both terrestrial and epiphytic species will be found in the limestone forests, montane sclerophyll formations, palm brakes and elfin thickets.

SYSTEMATICS AND DESCRIPTIONS OF SPECIES

The sequence of genera follows the arrangement proposed by Rudolf Schlechter in his "Das System der Orchideen," published in Notizblatt des botanischen Gartens und Museums, Berlin-Dahlem 9: 582–591, 1926.

NEW TAXONOMIC CHANGES INCLUDED IN THIS VOLUME

Spiranthes torta (Thunb.) Garay & Sweet .... p. 77
Helleriella punctulata (Rchb.f.) Garay & Sweet .... p. 167
Polystachya concreta (Jacq.) Garay & Sweet .... p. 178

ORCHIDACEAE A. L. de Jussieu, Gen. Pl. 64, 1789, as 'Orchideae'.

Plants perennial, herbs, vine- or shrub-like, exceedingly variable in habit as well as in habitat preference: terrestrial, lithophytic, epiphytic, rarely semiaquatic or subterranean. Most commonly autophytic, occasionally saprophytic, but never parasitic. Roots adventitious, fibrous, fleshy, rarely tuberous, single, fascicled or scattered along rhizome or aerial stem. Rhizome or primary stem commonly much reduced so that plants appear caespitose. Stems usually rounded or laterally compressed, occasionally angular, commonly elongated or reduced in size, often modified into pseudobulbs and rarely corm-like. Developmentally either SYMPODIAL, i.e. with a determinate apical yearly growth and a lateral bud for the following year's shoot, or MONOPODIAL, i.e. with an indeterminate apical growth year after year. Leaves from one to many, radical or cauline, alternate, opposite or whorled, rarely absent, commonly entire in outline, occasionally digitately lobed or sagittate; in origin convolute or conduplicate, the latter not rarely modified into a terete or equitant shape. Inflorescence one- to many-flowered spike, raceme or panicle, occasionally a pseudoumbel, usually supported by a peduncle of varying length. Flowers gynandrous, zygomorphic, hermaphroditic, rarely monoecious or dioecious, variable in size from 1/16″ to 8″ across, and in colors, mostly purple, yellow and green. Perianth — three sepals and three petals — each free from, or connate with, or adnate to, one another; the lip or ventral petal highly modified in form and usually of different coloration, an adaptation aiding pollination. Column or gynandrium fleshy, cylindric, erect or arcuate, sessile or extended into a foot, and capped by a single fertile anther. Pollinia 2 to 8, granulose or waxy, with or without a viscidium. Of the three stigmata two are fertile and confluent, the third commonly modified into a rostellum. Ovary inferior, sessile or pedicellate; mature fruit a dry capsule or a fleshy pod dehiscing through one to six longitudinal sutures. Seeds numerous, fusiform, dust-like, with transparent membranaceous seed coat, without endosperm, rarely globular with sclerotic seed coat.

The family consists of some 35,000 species distributed in 800 genera which occur everywhere except in the two polar regions. The greatest concentration, however, is in the cool moist tropical belt of the Old World and New World.

The description of the family does not include the characters of *Apostasioideae* and *Cypripedioideae*, since these subfamilies are not reported from this area. The keys as well as both generic and specific descriptions are, however, drawn primarily from material collected on the islands of the Lesser Antilles.

TYPE: Genus *Orchis* L. [Bullock in Taxon 7: 25, 1958]

KEY TO SUBFAMILIES

1. Anther firmly adnate to column, not deciduous; pollinia in soft massulae .... *Orchidoideae*
1a. Anther movably attached to column through a connective, commonly deciduous or soon withering 2
2. Pollinia granular; plants facultative geophytes .... *Neottioideae*
2a. Pollinia waxy or cartilaginous; plants facultative epiphytes .... *Epidendroideae*

KEY TO GENERA

1. Anther large, firmly adnate to and fused with inconspicuous, short column, neither deciduous nor withering; each cell with a separate pollinium composed of numerous, soft massulae on long caudicle and a distinct gland .... p. 27 *Habenaria*
1a. Anther small, movably attached to a prominent column through a connective, commonly deciduous or soon withering 2
2. Pollinia granular; plants facultative geophytes, i.e. commonly terrestrials with fleshy roots, rarely changing to epiphytic mode of life during life cycle (Vanilla) 3
2a. Pollinia waxy or cartilaginous; plants facultative epiphytes, i.e., with rather thin roots enclosed by a distinct velamen, rarely growing on rocks or among ground cover 18
3. Plants climbing, vine-like; fruit a fleshy pod .... p. 39 *Vanilla*
3a. Plants never vine-like, rhizomatous or caespitose; fruit a dry capsule 4
4. Plants with leaves present during anthesis 5
4a. Plants without leaves, saprophytic or, if halophytic, with leaves absent during anthesis 16
5. Plants with distinct rhizomes 6
5a. Plants caespitose 8
6. Rhizome elongate, decumbent; leaves remote; lateral sepals free to base 7
6a. Rhizome short, ascending; leaves approximate; lateral sepals united into a spur or sac .... p. 60 *Pseudocentrum*

7. Bracts allsided; lip basally produced into a distinct spur or sac ... p. 82 *Erythrodes*
7a. Bracts bifarious; lip without a spur or sac ... p. 37 *Psilochilus*
8. Stem cane-like, leafy, with stiff plicate leaves ... 9
8a. Stem herbaceous, when leafy, leaves soft, conduplicate ... 10
9. Inflorescence terminal; sepals basally free; base of lip gibbose with distinct calli inside ... p. 49 *Elleanthus*
9a. Inflorescence axillary; sepals basally united; base of lip linear, not gibbose and without calli ... p. 87 *Corymborkis*
10. Flowers not resupinate, i.e. lip uppermost ... 11
10a. Flowers resupinate, i.e., lip lowermost ... 13
11. Petals and lip adnate to column above base ... p. 64 *Ponthieva*
11a. Petals and lip free from column ... 12
12. Sepals forming a shallow cup, spreading or reflexed; petals and lip adnate to sepaline cup ... p. 57 *Prescottia*
12a. Sepals free to base, not reflexed; petals and lip not adnate to sepals ... p. 61 *Cranichis*
13. Plants depauperate; basal leaves absent; stem leafless, bracts foliaceous, remote; anther incumbent ... p. 36 *Triphora*
13a. Plants tall; basal or cauline leaves present; bracts not foliaceous; anther erect ... 14
14. Column with a distinct foot, the terminal half of which is free from ovary; lateral sepals with free column-foot form a spur-like mentum ... p. 80 *Eltroplectris*
14a. Column-foot absent or when present fully adnate to ovary; lateral sepals never form a spur-like mentum ... 15
15. Dorsal sepal and petals connivent into a hood; column with a distinct rostellum; stigmata two ... p. 65 *Spiranthes*
15a. Dorsal sepal and petals do not form a hood; column without a rostellum; stigmata confluent into one ... p. 35 *Chloraea*
16. Plants saprophytic; flowers not resupinate, i.e., lip uppermost; lateral sepals basally connate ... p. 55 *Wullschlaegelia*
16a. Plants holophytic; flowers resupinate, i.e. lip lowermost; lateral sepals free ... 17
17. Plants depauperate; bracts foliaceous; anther incumbent; rostellum absent; stigmata confluent into one ... p. 36 *Triphora*
17a. Plants tall; bracts not foliaceous; anther erect; rostellum present; stigmata two ... p. 65 *Spiranthes*
18. Inflorescence terminal ... 19
18a. Inflorescence axillary or lateral ... 35
19. Ovary articulated with pedicel; pedicels persistent; lip much smaller than other floral segments ... 20
19a. Ovary not articulated with pedicel; pedicels deciduous; lip as large as or larger than other floral segments ... 24
20. Sepals and petals dissimilar; pollinia 2 ... 21
20a. Sepals and petals more or less similar; pollinia 6 or 8 ... 23
21. Sepals stellate, basally connate in a shallow cup; petals fleshy; stigmata 2, separate on both sides of rostellum ... p. 90 *Stelis*
21a. Sepals never stellate, free, if connate do not form a cup; petals thin; stigmata confluent under rostellum ... 22

22. Column with a distinct foot, articulate with lip; petals elongate, longer than wide .... p. 95 *Pleurothallis*

22a. Column footless; lip adnate to face of column; petals transverse, wider than long .... p. 109 *Lepanthes*

23. Pollinia 6; column short, bibrachiate, footless; lip adnate to base of column .... p. 111 *Brachionidium*

23a. Pollinia 8; column elongate, ebrachiate with a distinct foot; lip articulate with column-foot .... p. 113 *Octomeria*

24. Pollinia without appendages, i.e. without caudicle or viscidium 25

24a. Pollinia with appendages, i.e. either with caudicle or with rudimentary viscidium, of which the margin is rarely well-defined 26

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25a. Column elongate; anther terminal, incumbent .... p. 119 *Liparis*

26. Column footless 27

26a. Column with a more or less distinct foot 30

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28. Inflorescence fasciculate, subtended by a leaf-like bract; flowers produced individually in succession with a distinct cuniculus at base; lip free or almost free from column continuous with cuniculus (ovary spur) .... p. 120 *Jacquiniella*

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29. Inflorescence racemose; lip distinctly 3-lobed with spreading segments; ovary erostrate .... p. 161 *Tetramicra*

29a. Inflorescence 1-flowered; lip entire, enveloping column; ovary prominently rostrate .... p. 163 *Brassavola*

30. Stem filiform, wiry throughout, neither pseudobulbous nor thickened; inflorescence secund; lateral sepals connate, with the dorsal one tightly connivent, subtubular .... p. 165 *Isochilus*

30a. Stem pseudobulbous or internodes variously thickened; inflorescence fasciculate, racemose or paniculate with allsided flowers; sepals variously spreading 31

31. Stem short, modified into a prominent, leafy pseudobulb; inflorescence pedunculate, racemose or paniculate above; flowers numerous, non-resupinate .... p. 176 *Polystachya*

31a. Stem elongate, variously thickened, often superimposed; inflorescence fasciculate or an aborted raceme, 1- to 2-flowered; flowers resupinate .. 32

32. Stem leafless and slender below, leafy and thickened above, rarely superimposed; leaves alternate, distichous; flowers pendulous .... p. 167 *Helleriella*

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33. Terminal leaf commonly one, terete or cylindric; sepals and petals reflexed; ovary cuniculate .... p. 169 *Reichenbachanthus*

33a. Terminal leaves commonly two with flat blades; sepals and petals ringent; ovary not cuniculate 34

34. Pseudobulbs sessile; pollinia 4 .... p. 170 *Scaphyglottis*

34a. Pseudobulbs stipitate; pollinia 6 .... p. 174 *Hexadesmia*

35. Vernation of leaves convolute; leaves thin, with many prominent veins, plicate 36

35a. Vernation of leaves duplicate; leaves fleshy or coriaceous with one prominent midvein, conduplicate 39

36. Plants with thickened rhizomes or corm-like 37

36a. Plants with well-developed pseudobulbs 38

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41a. Pollinia 4 44

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45a. Inflorescence several-flowered; lip spurred at base; column without a ligule under stigma . . . . p. 222 *Campylocentrum*

ORCHIDOIDEAE [Lindl. ex Pfeiffer, Nom. Bot. 2, pt. 1: 516, 1874]

Flowers zygomorphic; perianths dissimilar; column often rather short, more or less cylindric; anther only one with parallel or converging, at times quite distal, thecae, completely embedded in, and fused with, the columnar tissue, neither deciduous nor withering; pollen always in tetrads in rather soft massulae, forming distinct pollinia; stigmata 2 or 3, always confluent, the third one often abortive, but never forming a rostellum.

Type of the subfamily: Genus *Orchis* L.

HABENARIA Willdenow

Habenaria Willd., Sp. Pl. 4: 44, 1805.

Sepals free; dorsal sepal often forming a hood over the column; lateral sepals spreading or reflexed. Petals either simple or bifid, connivent with the dorsal sepal. Lip undivided or more commonly 3-lobed, at the base produced into a nectariferous spur. Column short, fleshy, cylindric, firmly fused with the anther. Anther 2-celled with prominent anther canals. Stigmata 2, confluent. Rostellum absent. Pollinia granular on distinct caudicles.

Terrestrial, rarely semiaquatic herbs with fleshy tubers and fibrous roots. Stem erect, simple with either basal or cauline leaves terminating in a single, unbranched inflorescence. Leaves entire, rather thin in texture, conduplicate, often reduced in size and bract-like. Inflorescence a raceme or a spike, loosely or densely flowered, rarely reduced to a single flower. Bracts commonly well developed and equal in length to the pedicellate ovary, occasionally foliaceous. Flowers variable in size, rarely showy.

LECTOTYPE: *Orchis Habenaria* L. [Kraenzlin in Engl. Bot. Jahrb.16:58, 1892].

This polymorphic genus of approximately 600 species is distributed throughout the subtropical and tropical parts of both hemispheres.

KEY TO SPECIES

1. Lip simple, linear to oblong-ligulate, rarely obscurely dentate at base on either side 2
1a. Lip distinctly 3-lobed, lateral segments spreading or reflexed 4
2. Inflorescence loosely many-flowered; ovary spreading, smooth 3
2a. Inflorescence subdensely many-flowered; ovary suberect, prominently winged .... *H. alata*
3. Dorsal sepal smaller than the lateral ones; spur less than 1.5 cm. long .... *H. eustachya*

3a. Dorsal sepal as long as the lateral ones; spur more than 1.5 cm. long .... *H. odontopetala*

4. Stem green throughout; flowers green, small; spur 4 mm. long, shorter than ovary .... *H. Dussii*

4a. Stem dark maculate throughout; flowers white, large; spur 24 mm. long, longer than ovary .... *H. monorrhiza*

Habenaria alata Hook., Exot. Fl. 3: t. 169, 1826; Kraenzlin in Engl. Bot. Jahrb. 16: 219, 1892; Rolfe in Kew Bull. 279, 1893; Duss in Ann. Inst. Col. Marseille 3: 607, 1897; Ames, Orch. 4: 273, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 65, 1939; Schultes in Amer. Orch. Soc. Bull. 25: 390, 1956. — **Fig. 1.**

Type: St. Vincent. Coll. Guilding s.n.! (K).

Plants erect, up to 70 cm. tall. Stem leafy, completely enclosed by leaf sheaths. Leaves suberect, spreading, rather thin in texture, lanceolate or narrowly ovate-lanceolate, acute to subacuminate, those toward the upper part of inflorescence narrower, up to 15 cm. long and 2 cm. wide; those below the inflorescence small and bract-like. Inflorescence racemose, subdensely many-flowered, up to 15 cm. long. Bracts narrowly ovate-lanceolate to linear-lanceolate, acuminate, commonly longer than pedicellate ovaries, decreasing in size toward apex of inflorescence, the longest up to 3 cm. long. Flowers greenish yellow. Dorsal sepal broadly ovate with cuspidate apex, concave, margins distinctly papillose, especially below the cuspidate tip, up to 8 mm. long and 6 mm. wide. Lateral sepals obliquely ovate to ovate-lanceolate or triangular-lanceolate, cuspidate, margins distinctly papillose, up to 8 mm. long and 4 mm. wide. Petals rather fleshy, obliquely lanceolate to subfalcate-lanceolate, acute on anterior margin provided with a small dentiform auricle at base, shorter than the dorsal sepal. Lip fleshy, porrect, entire, linear-ligulate to linear-lanceolate, obscurely dentate at base on either side, up to 8 mm. long. Spur linear or linear-subclavate, arcuate, up to 12 mm. long. Ovary prominently winged at maturity, short pedicellate, up to 15 mm. long.

Flowers from August to December.

General Distribution: Central America, South America, Greater Antilles, Trinidad, Tobago.

Distribution in Lesser Antilles: Antigua!, Guadeloupe!, Dominica, Martinique!, St. Vincent!, Grenada!.

Habenaria Dussii Cogn. in Urb., Symb. Antill. 6: 307, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 65, 1939; Garay in Journ. Arn. Arb. 50: 462, 1969.

Type: Guadeloupe, in humid forest near Nez-Cassé. Coll. Duss no. 3931! (AMES).

Plants up to 20 cm. tall. Stem erect, leafy. Leaves thin, linear or

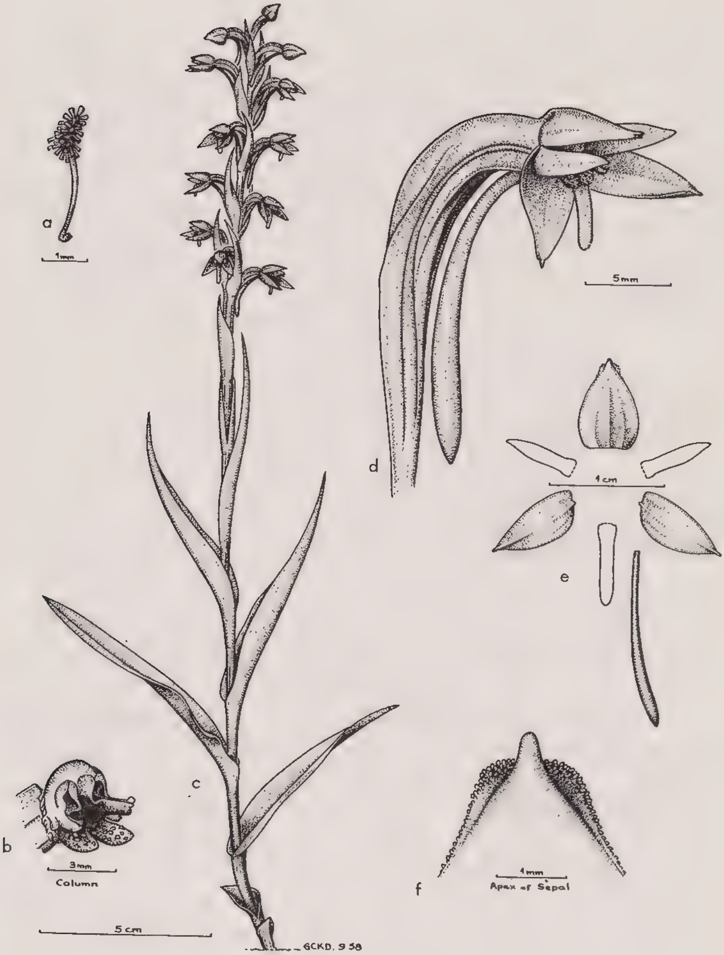


FIGURE 1. *Habenaria alata* Hook. Drawn by G. C. K. Dunsterville.

linear-ligulate, acuminate, with vaginate base, decreasing in size upwards on stem, the largest up to 11 cm. long and 0.8 cm. wide. Raceme elongate, loosely several-flowered. Bracts ovate-lanceolate, acute or subacuminate, decreasing in size towards apex of inflorescence, as long as the ovary, or rarely longer, the longest up to 2 cm. long. Flowers green. Dorsal sepal broadly ovate or suborbicular, concave or cucullate, up to 5 mm. long and 4 mm. wide. Lateral sepals spreading, obliquely ovate, acute, up to 5 mm. long and 2.5 mm. wide. Petals bilobed, dorsal segment included in the cucullate dorsal sepal, linear-lanceolate, up to 4 mm. long and 1 mm. wide; ventral lobe dentiform, falcate-linear, 1.5 mm. long. Lip 3-lobed, cruciform; midlobe porrect, linear-oblong, fleshy, up to 5 mm. long; lateral lobes rectangularly divergent, linear-lanceolate, up to 2 mm. long. Spur arcuately curved, cylindric, obtuse, up to 4 mm. long. Ovary cylindric, very short pedicellate, up to 1 cm. long.

Flowers from September to December.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Antigua, Guadeloupe!, St. Vincent!.

Habenaria eustachya Rchb.f. in Ber. Deutsch. Bot. Gesellsch. 3: 274, 1885; Kraenzlin in Engl. Bot. Jahrb. 16: 183, 1892; Cogn. in Urb., Symb. Antill. 6: 306, 1909; Ames, Orch. 4: 259, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 64, 1939.

Type: Puerto Rico, near Maricao. Coll. Sintenis no. 511 b! (AMES, W).

Plants large, up to 1 meter tall, commonly shorter. Stem leafy. Leaves often decreasing in size and become bract-like, narrowly elliptic to lanceolate-elliptic, occasionally narrowly ovate-lanceolate, acute or subacuminate, up to 15 cm. long and 3 cm. wide, commonly narrower. Inflorescence elongate, laxly many-flowered, up to 45 cm. long. Specimens in fructification appear rather compact. Bracts ovate-lanceolate to linear-lanceolate, acuminate, decreasing in size upwards, at base of inflorescence as long as ovaries, those from upper part are shorter than the pedicellate ovaries. Flowers rather small, green to greenish yellow, fragrant. Dorsal sepal broadly ovate to ovate-elliptic, obtuse, concave, usually hooded, up to 6 mm. long and 4 mm. wide. Lateral sepals spreading, or more commonly reflexed, obliquely ovate-lanceolate, subfalcate, rarely ovate, acute, up to 8 mm. long and 3 mm. wide. Petals ovate-oblong to subquadrate-oblong, somewhat arcuately curved, truncate or irregularly 3-dentate at apex, obliquely decurrent on anterior margin at base forming a small dent, up to 5 mm. long and 2 mm. wide. Lip arcuately deflexed, linear-lanceolate to linear-oblong, acute or rounded at apex, slightly dilated at base, margins often revolute; disc incrassate in front of entrance to spur, up to 8 mm. long. Spur cylindrical, filiform, somewhat constricted at base, commonly as long as the ovary, up to 1.2 cm. long.

Flowers during November.

General Distribution: Central America, Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe, ravine Malanza, 650 m. alt. Coll. Stehlé no 831! (ames, ny).

Habenaria monorrhiza (Sw.) Rchb.f. in Ber. Deutsch. Bot. Gesellsch. 3: 274, 1885; Kraenzlin in Engl. Bot. Jahrb. 16: 183, 1892; Stehlé, Fl. Descr. Antill. Fr. 1: 64, 1939; Hodge in Lloydia 17: 186, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 390, 1956; Gooding, Loveless & Proctor, Fl. Barbados 113, 1965. — Fig. 2.

Basionym: *Orchis monorrhiza* Sw., Nov. Gen. & Sp. Pl., Prodr. 118, 1788.
Type: Jamaica. Coll. Swartz s.n.! (bm).

Syn: *Orchis setacea* Jacq., Enum. Syst. Pl. 29, 1760, not *Habenaria setacea* Lindl.
Type: Martinique, without proper locality. Coll. Jacquin s.n.! (w).

Habenaria maculosa Lindl., Gen. and Sp. Orch. Pl. 309, 1835; Rolfe in Kew Bull. 279, 1893; Duss in Ann. Inst. Col. Marseille 3: 607, 1897; Cogn. in Urb., Symb. Antill. 6: 304, 1909.
Lectotype: St. Vincent. Coll. Guilding s.n.! (k–l).

Terrestrial, erect plants, up to 120 cm. tall. Roots many, fibrous. Tuber ovoid, glabrous. Stem leafy, distinctly dark maculate. Leaves rather soft in texture, ovate, ovate-lanceolate or oblong-lanceolate, acute or subacuminate, sheathing at base, up to 15 cm. long and 4 cm. wide, decreasing in size toward the inflorescence. Inflorescence racemose, variable in size, up to 25 cm. long. Flowers rather delicate, white. Dorsal sepal ovate to elliptic, acute or obtuse, deeply concave, up to 14 mm. long; lateral sepals oblique, in shape similar to the dorsal sepal, but slightly longer and narrower. Petals deeply bipartite, posterior segment ovate or oblong-ligulate, anterior segment filiform, up to 8 mm. long. Lip distinctly 3-lobed, midlobe oblong-ligulate, obtuse, equal to, or shorter than, the side lobes; lateral lobes divergent, filiform, often reflexed; all segments glabrous. Spur filiform, longer than the ovary, up to 24 mm. long. Pedicellate ovary cylindric.

Flowers from September to April.

General Distribution: Common and locally abundant throughout the American tropics.

Distribution in Lesser Antilles: Antigua, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados, Grenada!.

Observation: Cogniaux in Urb., Symb. Antill. 6: 307, 1909, considers *Orchis monorrhiza* Sw. and *Habenaria alata* Hook. identical. Hence, his description is a mixture. However, an examination of the type clearly

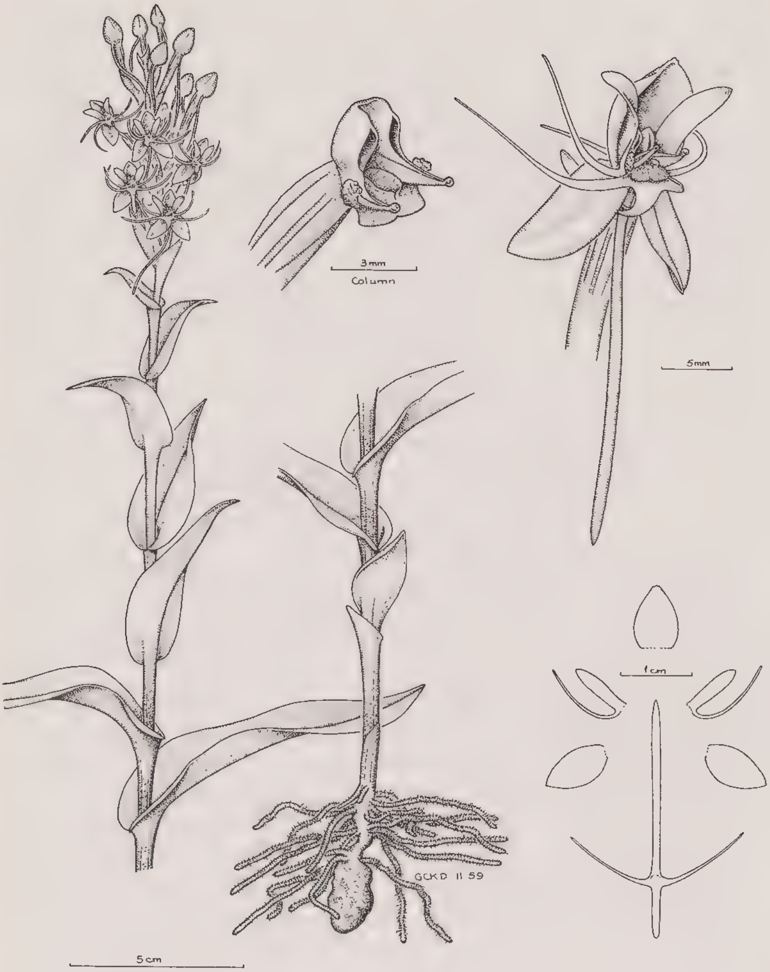


FIGURE 2. *Habenaria monorrhiza* (Sw.) Rchb. f.
Drawn by G. C. K. Dunsterville.

shows that *O. monorrhiza* has a distinctly 3-lobed lip, whereas in *H. alata* the lip is undivided.

Habenaria odontopetala Rchb. f. in Linnaea 18: 407, 1844; Kraenzlin in Engl. Bot. Jahrb. 16: 183, 1892; Ames, Orch. 4: 266, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 66, 1939. — **Fig. 3.**

Syn.: *Habenaria strictissima* var. *odontopetala* (Rchb. f.) L. O. Wms. in Bot. Mus. Leafl. Harv. Univ. 7: 184, 1939.
Type: Mexico. Coll. Leibold s.n.! (w).

Plants erect, up to 1 meter tall. Stem leafy. Leaves narrowly elliptic or elliptic-lanceolate, acute, up to 15 cm. long and 3 cm. wide. Inflorescence racemose, erect, loosely many-flowered. Bracts ovate-lanceolate, acute or acuminate, those at base of inflorescence foliaceous, decreasing in size upwards, up to 3 cm. long. Flowers greenish yellow, arcuately spreading on slender pedicellate ovaries. Dorsal sepal broadly ovate to suborbicular, very strongly cucullate, up to 8 mm. long. Lateral sepals spreading or reflexed, obliquely ovate, acute or obtuse, up to 8 mm. long. Petals linear-oblong to subquadrate-oblong, acute or obtusely 3-dentate at apex, anteriorly produced at base into a small tooth-like appendage, up to 5 mm. long. Lip from a narrowly cuneate base oblong-ligulate, obtuse, usually decurved, up to 10 mm. long. Spur cylindric, slender, somewhat constricted towards base with an acute apex, as long as or longer than the ovary.

Flowers in November and December.

GENERAL DISTRIBUTION: Southern United States, Central America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, near River Rouge, 600 m. alt. Coll. Stehlé no. 2462! (AMES).

OBSERVATION: This species is very closely allied to *H. eustachya*, but readily distinguishable by the appearance of its lax inflorescence with more slender and freely spreading pedicellate ovaries. The flowers are comparatively larger and the sepals are of equal length. The changing of the status of this species to a varietal rank under *H. strictissima* Rchb. f. is unwarranted since, with the exception of a superficial resemblance in habit, the two species share no characters in floral morphology.

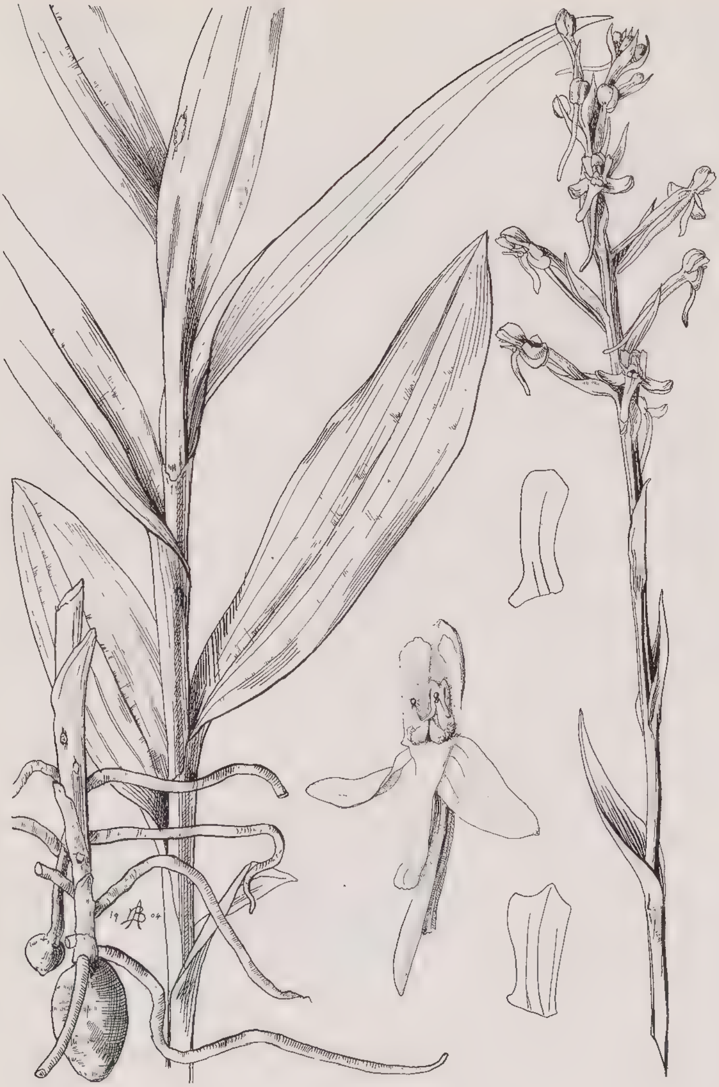


FIGURE 3. *Habenaria odontopetala* Rchb. f. Drawn by Blanche Ames Ames.

NEOTTIOIDEAE Lindl. ex Endlicher, Gen. Pl. 212, 1837.

Flowers zygomorphic; perianths dissimilar, rarely in *Eucosia* and *Thelymitra* subsimilar; column often very short; anther only one, erect, hence dorsal, basally or dorsally attached through a connective to the column, rarely versatile, with parallel thecae, commonly withering and persistent; mature pollen single or in tetrads, loosely cohering into farinaceous massulae, forming distinct pollinia; stigmata 2 or 3, separate or confluent, the third one often fully modified into a rostellum.

Type of the subfamily: Genus *Neottia* L.

CHLORAEA Lindley

Chloraea Lindl. in Quart. Journ. Sci. 23: 47, 1827.

Sepals spreading, the lateral ones often reflexed with a thickened, discolored ornate apex. Petals erect, parallel with column. Lip articulate with base of column, entire or lobed, disc variously ornamented. Column cylindric, erect or arcuate, footless. Stigmata confluent into one, below the apex of column. Rostellum not developed. Anther erect, operculate, 2-celled. Pollinia 2, powdery-granular, bipartite.

Terrestrial leafy herbs with fleshy fasciculate tuber-like roots. Leaves mostly basal or aggregated near base, rarely cauline, soft, conduplicate. Peduncle erect, commonly enclosed by imbricating, papery sheaths. Inflorescence racemose or spicate, laxly or densely few- to many-flowered. Flowers small to conspicuous.

TYPE: *Cymbidium luteum* Willd. [Lindl., Coll. Bot. Append. no. 12, 1825].

Approximately 60 species in temperate South America. One species reported from West Indies.

Chloraea Ulantha Rolfe in Kew Bull. 278, 1893; Kraenzlin, Orch. Gen. et Sp. 2: 55, 1903; Cogn. in Urb., Symb. Antill. 6: 312, 1909.

Basionym: *Neottia grandiflora* Hook. in Bot. Mag. 57: t. 2956, 1829, not Hook. 1827.

Syn.: *Ulantha grandiflora* (Hook.) Hook in Bot. Mag. 57: sub t. 2990, 1830.
Type: St. Vincent, without proper locality. Coll. Guilding s.n.! (K).

Terrestrial, erect, leafy herbs, up to 30 cm. tall. Leaves mostly near base, linear-oblong, acute to subacuminate, arcuately patent, up to 20 cm. long. Inflorescence rather robust, loosely racemose above. Peduncle enclosed by rather close-fitting, tubular sheaths. Bracts ovate-lanceolate, acuminate, up to 5 cm. long. Flowers few, large and showy. Dorsal sepal oblong-ovate, concave, obtuse, up to 5 cm. long; lateral sepals spreading, long cuneate-spathulate with a crispate-undulate margin, obtuse or rounded at apex, up to 6 cm. long; the spathulate apical part is sparsely covered with thickened barb-like papillae. Petals obovate, obtuse with somewhat crispate margins, up to 4 cm. long. Lip from a cuneate base 3-lobed; lateral lobes triangular, acute; midlobe transversally elliptic, crispate; disc basally provided with six parallel fleshy lamellae in front of which are several scattered barb-like papillae. Whole lip up to 4.5 cm. long. Column erect, cylindric. Ovary cylindric, up to 5 cm. long.

General Distribution: Endemic in Lesser Antilles.

Distribution in Lesser Antilles: St. Vincent!.

Observation: The genus *Chloraea* is essentially south temperate in distribution. The occurrence of *C. Ulantha* in St. Vincent is indeed doubtful, especially so, since it was collected only once. Yet, we are unable to identify it with any of the species described from South America. Dr. Maevia Correa in her recent monograph Darwiniana 15: 434, 1969 considers this species to be conspecific with *C. bletioides* Lindl. from Chile. However, an examination of the type of this latter species convinces us that such a reduction is unwarranted.

TRIPHORA Nuttall

Triphora Nutt., Gen. N. Amer. Pl. 2: 192, 1818.

Sepals and petals free, subringent. Dorsal sepal concave or cucullate. Lateral sepals oblique. Petals similar to dorsal sepal. Lip 3-lobed, sessile, with a cuneate base. Column erect, subclavate, without a foot. Stigmata confluent. Rostellum absent. Anther incumbent. Pollinia powdery-granular. Ovary cylindric.

Delicate terrestrial herbs with a distinct tuber or several tuber-like fleshy roots. Rhizome abbreviated or lacking. Stem slender with a few remote sheaths, leafless. Bracts foliaceous, well-developed. Flowers one to few in a loose raceme.

Type: *Arethusa trianthophora Sw.* [Nutt., Gen. N. Amer. Pl. 2: 193, 1818].

Approximately 15 species in tropical and subtropical America and West Indies, with one species in temperate North America.

Triphora surinamensis (Lindl.) Britt. in Britt. & Wils., Bot. Porto Rico and Virg. Isl. 5 pt., 1: 184, 1924; Stehlé, Fl. Descr. Antill. Fr. 1: 79, 1939; Hodge in Lloydia 17: 186, 1954. .

Basionym: *Pogonia surinamensis* Lindl. in Hook. Lond. Journ. Bot. 2: 674, 1843; Cogn. in Urb., Symb. Antill. 6: 316, 1909.
Type: Guyana, Berlice River. Coll. Schomburgk s.n.! (K).

Terrestrial plants. Roots fleshy, villose. Stem from a horizontal or ascending short rhizomatous base, erect, leafless, rather slender, up to 15 cm. tall. Bracts foliaceous, ovate, on upper part of stem, alternate, sessile with cordate base usually enveloping the stem, acute to subacuminate, up to 2.5 cm. long and 1.5 cm. wide. Flowers purplish to rose, solitary, on long slender erect pedicels, from axils of foliaceous bracts. Dorsal sepal narrowly oblong-elliptic, up to 12 mm. long; lateral sepals obliquely ligulate, subfalcate, acute, subequal in length to dorsal sepal. Petals linear-oblong, obtuse, subfalcate, up to 10 mm. long. Lip from cuneate base ovate in outline, distinctly 3-lobed in apical third; lateral lobes triangular-falcate with rounded tips, curving inward; midlobe broadly triangular, obtuse, disc provided with three parallel rows of papillose keels running from base to apex to midlobe. Length of whole lip up to 9 mm. long and 7 mm. wide. Column slender, alate, up to 8 mm. long. Pedicellate ovary cylindric, up to 15 mm. long.

Flowers in June–July.

GENERAL DISTRIBUTION: Puerto Rico, Trinidad, Venezuela, Colombia, Surinam, Guyana, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!.

PSILOCHILUS Barbosa Rodrigues

Psilochilus Barb. Rodr., Gen. et Sp. Orch. Nov. 2: 272, 1882.

Sepals free, subringent, rather thin in texture. Dorsal sepal narrow, concave to subcucullate. Lateral sepals obliquely subfalcate. Petals free. Lip free with a distinct linear, arcuate claw, 3-lobed above. Column slender, sinuous or arcuate, somewhat shorter than the dorsal sepal, with distinct auriculate wings at apex. Stigmata confluent. Rostellum absent. Anther terminal, substipitate. Pollinia powdery-granular. Ovary cylindric.

Terrestrial herbs with a decumbent rhizome rooted at nodes. Roots fleshy, villose. Stem erect or ascending, remotely several-leaved. Leaves fleshy, contracted into a short petiole, then expanded in loosely-fitting sheaths. Inflorescence terminal, sessile or subpedunculate. Bracts bifarious. Flowers produced in succession.

TYPE: *Psilochilus modestus* Barb. Rodr. [Barb. Rodr., Gen. et Sp. Orch. Nov. 2: 272, 1882].

Three species in tropical America and West Indies.

Psilochilus macrophyllus (Lindl.) Ames, Orch. 7: 45, 1922; Stehlé, Fl. Descr. Antill. Fr. 1: 75, 1939; Hodge in Lloydia 17: 186, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 392, 1956. — **Fig. 4.**

Basionym: *Pogonia macrophylla* Lindl. in Ann. and Mag. Nat. Hist. ser. 3, 1: 335, 1858; Rolfe in Kew Bull. 278, 1893; Cogn. in Urb., Symb. Antill. 6: 317, 1909.

Type: Cuba: Nemanima. Coll. Wright no. 615! (K–L, AMES).

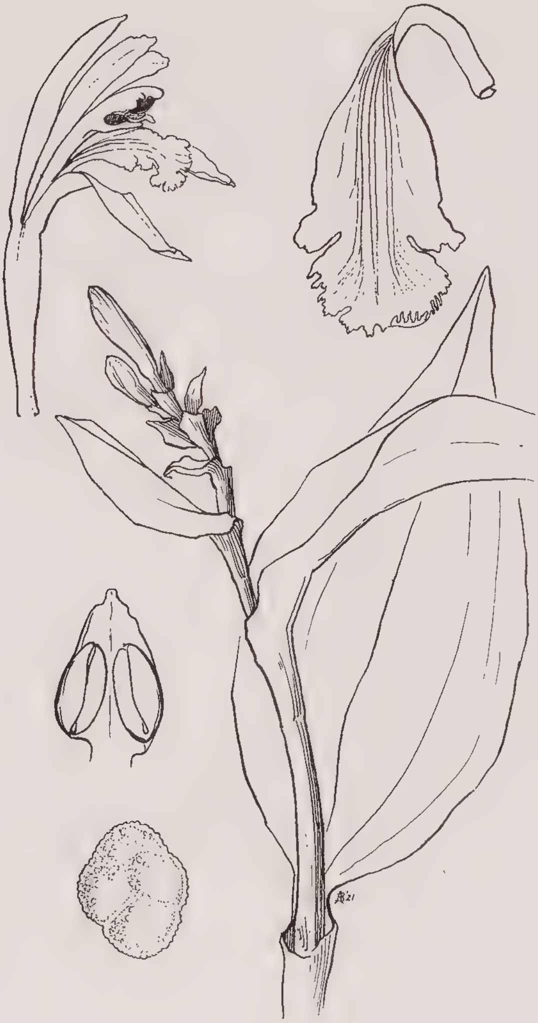


FIGURE 4. *Psilochilus macrophyllus* (Lindl.) Ames.
Drawn by Blanche Ames Ames.

Terrestrial. Roots fleshy, villose. Stem from an ascending rhizome, erect, robust, up to 30 cm. tall. Leaves alternate, rather distant, ovate to ovate-lanceolate, acute or subacuminate, basally contracted into a short petiole, up to 10 cm. long and 4 cm. wide. Inflorescence terminal, subsessile. Rachis somewhat fractiflex, up to 7 cm. long. Bracts bifarious, ovate, laterally somewhat compressed, acute, shorter than the pedicellate ovaries. Flowers green or greenish yellow, produced in succession, one or two at a time, erect, on a distinct but short pedicel. Sepals linear-oblong, obtuse, up to 15 mm. long. Petals linear-ligulate, subacute, somewhat shorter than the sepals. Lip long-unguiculate, from cuneate base distinctly 3-lobed; lateral lobes erect, short, obtuse; midlobe produced much beyond the lateral lobes, somewhat arcuate, suborbicular in outline, with a very crispate margin, disc without distinct keels. Length of whole lip 12 mm. Column slender, up to 12 mm. long. Pedicellate ovary up to 2 cm. long.

Flowers from March and August to December–January.

General Distribution: Central America, Greater Antilles, tropical northern South America, Trinidad.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, St. Lucia, St. Vincent!, Grenada!.

VANILLA Plumier ex Miller

Vanilla Plum. ex Mill., Gard. Dict., abbridged ed. 4, 3: without page number, 1754.

Sepals fleshy, free, subequal, ringent. Petals similar to sepals. Lip with distinct claw fully adnate to column, the free blade envelops the column, the disc commonly with a tuft of retrorse denticulate lamellae. Column slender, elongate, footless, often hairy in front. Stigmata confluent, transverse. Rostellum not developed. Anther incumbent. Pollinia powdery-granular. Fruit a fleshy pod.

Epiphytic herbaceous plants. Monopodial. Stem vine-like, leafy. Leaves fleshy or coriaceous, alternate. Inflorescence from axils or leaves, racemose. Flowers showy, several to many, remote or approximate.

Type: *Epidendrum Vanilla* L. = *Vanilla mexicana* Mill. [Mansf. in Kulturpfl. 2: 587, 1959].

Approximately 100 species pantropical in distribution.

Key to Species

1. Leaves much longer than internodes 2

1a. Leaves as long as or shorter than internodes 5

2. Inflorescence elongate, slender; rachis more or less flexuous; bracts foliaceous; flowers few, remote 3

2a. Inflorescence short, stout; rachis not flexuous; bracts scale-like; flowers several, approximate 4

3. Sepals up to 6.5 cm. long; lip 3-lobed, without a tuft of lamellae on disc. .... *V. mexicana*

3a. Sepals up to 8.5 cm. long; lip entire, with a tuft of retrorse denticulate lamellae .... *V. Pléei*

4. Leaves fleshy, ovate-elliptic; bracts up to 7 mm. long; lip cuneate-triangular with a truncate terminal lobe; fruit slender, cylindric .... *V. planifolia*

4a. Leaves coriaceous, ovate to oblong-ovate; bracts not less than 12 mm. long; lip ovate-elliptic, entire; fruit stout, fusiform .... *V. Pompona*

5. Mature stem robust; leaves coriaceous, oblong-ligulate; flowers not less than 6.5 cm. long .... *V. phaeantha*

5a. Mature stem slender, wiry; leaves fleshy, ovate-lanceolate; flowers up to 5 cm. long 6

6. Lip when spread cuneate-ovate, acute or subacuminate; disc with scattered ramentaceous hairs .... *V. Wrightii*

6a. Lip when spread cuneate-obovate, acute or subobtuse; disc with thickened veins and with a tuft of retrorse, denticulate lamellae .... *V. Hartii*

Vanilla Hartii Rolfe in Kew Bull. 113, 1899; Cogn. in Urb., Symb. Antill. 6: 322, 1909; Portères in Encycl. Biol. 46: 250, 1954.

Type: Trinidad, without proper locality. Coll. Hart no. 6355! (K).

Epiphytic, scandent. Stem rather slender, wiry, rooted at nodes. Leaves shorter than internodes, obliquely oblong-elliptic to ovate-lanceolate, acuminate, basally rounded and contracted into a 1 cm.-long petiole; blade up to 9 cm. long and 2.5 cm. wide. Inflorescence from axils of leaves, sessile, very short, few-flowered, up to 1.5 cm. long. Bracts broadly ovate-triangular, acute or obtuse, more or less cymbiform, up to 5 mm. long. Flowers greenish white, pleasantly fragrant. Sepals and petals similar, linear-oblong to oblong-lanceolate, acute or subobtuse, up to 4 cm. long. Lip with a distinct claw adnate to column, in natural position tubular, free part of limb when expanded cuneate-obovate, acute or subobtuse in front, disc with more or less thickened veins and in middle provided with a tuft of retrorse denticulate lamellae, whole lip up to 32 mm. long. Pedicellate ovary rather slender, arcuate, terete, up to 2 cm. long. Fruit rather narrow, fleshy pod, up to 15 cm. long.

Flowers from April to June.

General Distribution: Trinidad, Tobago.

Distribution in Lesser Antilles: Dominica, Lisdara estate near Bellview. Coll. Hodge no. 387! (AMES).

Vanilla mexicana Mill., Gard. Dict., ed. 8, no. 1, 1786. — **Fig. 5.**

Basionym: *Epidendrum Vanilla* L., Sp. Pl., ed. 1, 2: 952, 1753. Based on *Vanilla flore viridi & albo, fructu nigrescente*, Plumier, Nov. Pl. Amer. Gen. 25, t. 28, 1703, and Icon. Burm. t. 188, 1759.

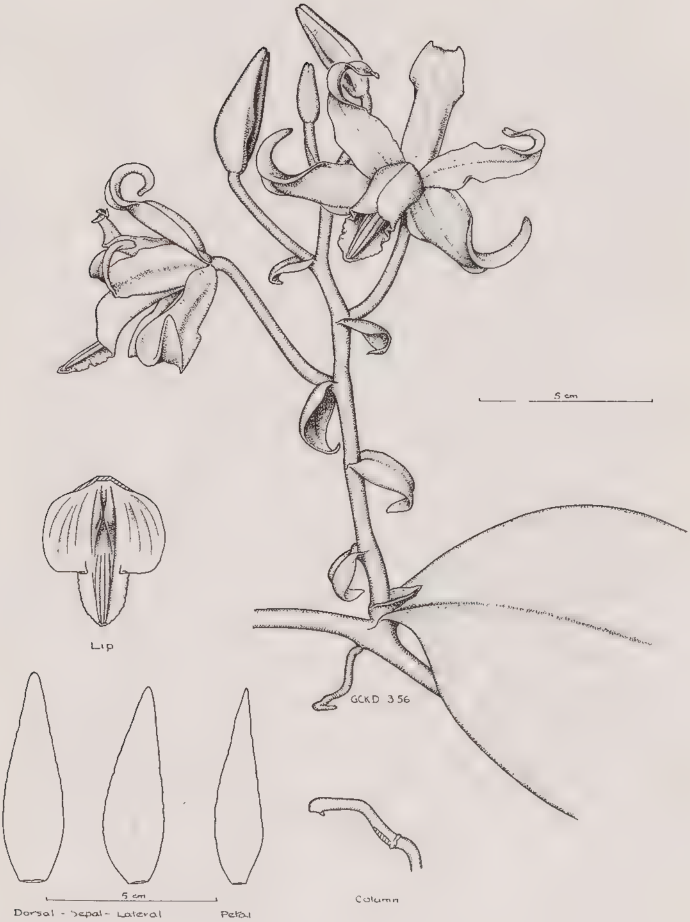


FIGURE 5. *Vanilla mexicana* Mill. Drawn by G. C. K. Dunsterville.

Syn.: *Vanilla aromatica* Sw. in Nov. Act. Soc. Sci. Upsal. 6: 66, 1799; Duss in Ann. Inst. Col. Marseille 3: 601, 1897.
Type: Haiti, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Vanilla inodora Schiede in Linnaea 4: 574, 1829; Rolfe in Journ. Linn. Soc. 32: 449, 1896; Cogn. in Urb., Symb. Antill. 6: 320, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 108, 1939; Hodge in Lloydia 17: 197, 1954; Portères in Encycl. Biol. 46: 252, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 394, 1956.
Type: Mexico, Misantla. Coll. Schiede no. 1044! (K).

Epiphytic, scandent, branching, vine-like plants with short fleshy roots from nodes. Stem often rather stout, somewhat flexuous. Leaves longer than internodes, quite variable, more or less decreasing in size toward apex of stem, those from older growth broadly ovate to ovate-elliptic, acute or subacuminate, subcuneate at base and tapering into a short, up to 1 cm.-long petiole, blade up to 22 cm. long and 10 cm. wide, those from more recent growth ovate-elliptic to elliptic, proportionately much narrower, acute to subacuminate, basally acutely cuneate, tapering into an up to one-half cm.-long petiole, blade up to 13 cm. long and 6 cm. wide. Inflorescence sessile, from axils of leaves, elongate with a fractiflex rachis, remotely few-flowered, up to 10 cm. long. Bracts foliaceous, broadly ovate-elliptic, acute, up to 2.5 cm. long and 1.5 cm. wide. Flowers produced in succession, greenish with a white lip, crest on lip yellow. Sepals and petals similar, narrowly ovate-lanceolate to lanceolate-elliptic, acute, up to 6.5 cm. long. Petals somewhat shorter. Lip basally adnate to column, then cuneately 3-lobed; lateral lobes semi-ovate, rounded; midlobe more or less broadly triangular, acute or obtuse, disc with 3 keels without tufts of lamellae, whole lip up to 4.5 cm. long. Pedicellate ovary up to 5 cm. long. Fruit fleshy pod, up to 25 cm. long, not fragrant.

Flowers throughout the year.

GENERAL DISTRIBUTION: Greater Antilles, Central America, tropical South America, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, Grenada.

Vanilla phaeantha Rchb. f. in Flora 48: 274, 1865; Rolfe in Kew Bull. 278, 1893; in Journ. Linn. Soc. Bot. 32: 464, 1896; Cogn. in Urb., Symb. Antill. 6: 323, 1909; Portères in Encycl. Biol. 46: 242, 1954.— **Fig. 6.**

Type: Cuba: San Cristobal. Coll. Wright no. 3351! (AMES).

Epiphytic, scandent. Stem vine-like, stout, rooted at nodes. Leaves as long as or shorter than internodes, fleshy to coriaceous, elliptic-oblong to oblong-ligulate, acute or subobtuse, basally rounded and contracted into a short 0.5 cm.-long petiole; blade up to 15 cm. long and 5 cm. wide. In-

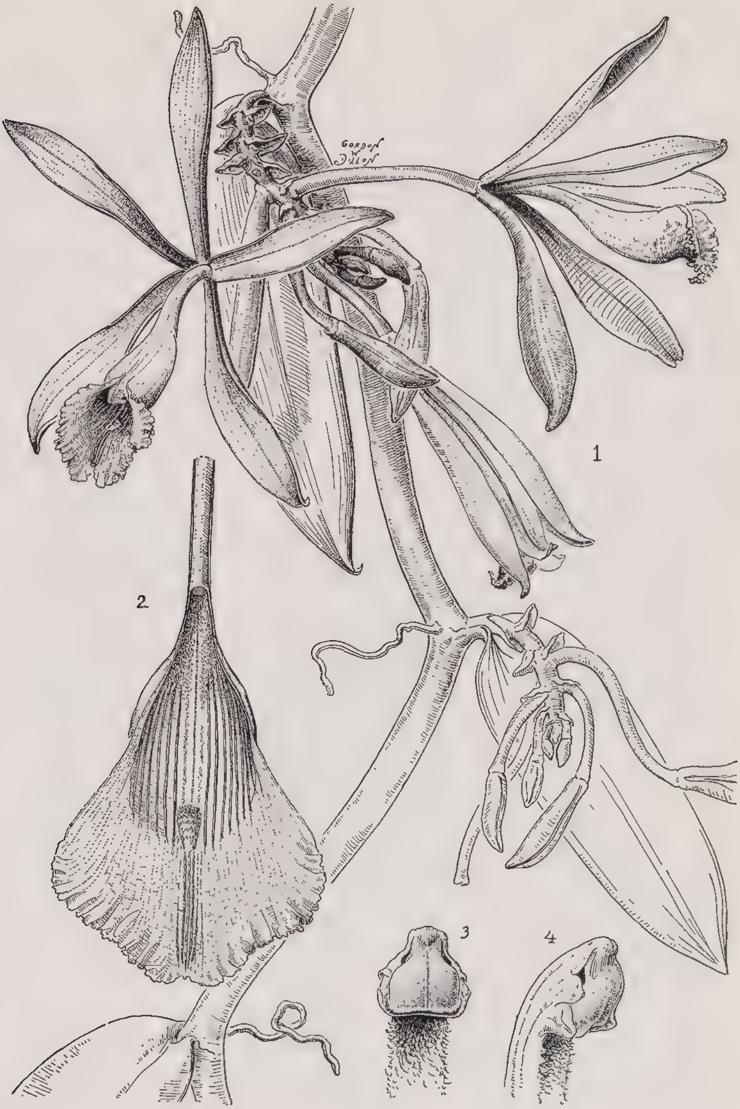


FIGURE 6. *Vanilla phaeantha* Rchb. f. 1, plant. 2, lip expanded. 3 and 4, apex of column. Drawn by G. W. Dillon.

florescence sessile, from axils of leaves, racemose, up to 8 cm. long. Bracts ovate-cucullate, acute or subobtuse, up to 1 cm. long. Flowers rather showy, greenish with yellow crest on lip. Sepals oblanceolate, acute or obtuse, up to 8 cm. long and 2 cm. wide. Petals narrowly oblong-ligulate to oblanceolate, obtuse, up to 7.5 cm. long and 12 mm. wide. Lip basally with a long claw completely adnate to column, blade in natural position envelops column, when spread cuneate-rhombic with obtuse or rounded angles, retuse in front, undulate along margins, disc with more or less raised but not verrucose veins along the basal part behind the tuft of retrorse denticulate lamellae in center. Whole lip up to 8 cm. long and expanded up to 4 cm. wide. Ovaries subsessile, cylindric, up to 4 cm. long. Fruit fleshy, fusiform pod, up to 8 cm. long.

Flowers from March through July.

General Distribution: Florida, Bahamas, Greater Antilles, Trinidad, Tobago.

Distribution in Lesser Antilles: St. Vincent!.

Vanilla planifolia G. Jackson in Andrews, Bot. Repos. 8: t. 538, 1808; Rolfe in Journ. Linn. Soc. Bot. 32: 463, 1896; Duss in Ann. Inst. Col. Marseille 3: 601, 1897; Cogn. in Urb., Symb. Antill. 6: 322, 1909. — **Fig. 7.**

Syn.: *Myrobroma fragrans* Salisb., Parad. Lond. 2: t. 82, 1807, *nom. illeg.*
Vanilla fragrans (Salisb.) Ames, Sched. Orch. 7: 36, 1924; Stehlé, Fl. Descr. Antill. Fr. 1: 109, 1939; Portères in Encycl. Biol. 46: 234, 1954.

Lectotype: West Indies, without proper locality. Introduced into England by the Marquis of Blandford and flowered in the collection of the Rt. Hon. Charles Greville. No herbarium specimen was preserved. Andrews' plate 538 is prepared from the Greville specimen and it is chosen here as the lectotype.

Epiphytic, scandent, leafy, roots at nodes. Stem rather fleshy, more or less flexuous, vine-like. Leaves longer than internodes, fleshy, ovate-elliptic to elliptic-oblong, acute or subacuminate, up to 20 cm. long and 5 cm. wide. Inflorescence subsessile, in axils of leaves, racemose, several-flowered, up to 5 cm. long. Bracts broadly ovate to broadly triangular, acute, up to 7 mm. long. Flowers several, produced in succession and open one or two at a time, pale green to greenish yellow, showy, ringent. Sepals similar, linear-oblong to narrowly ovate, acute or obtuse, up to 6 cm. long. Petals similar in shape to sepals, but shorter. Lip distinctly clawed. tubular in natural position, when expanded cuneate-triangular in outline, truncate in front with a short emarginate terminal lobule, disc with longitudinal verrucose or papillose lines along the veins, in center provided with a tuft of commonly retrorse pubescence, up to 4 cm. long. Ovary terete, arcuately curved, up to 4 cm. long. Fruit fleshy pod, up to 15 cm. long.

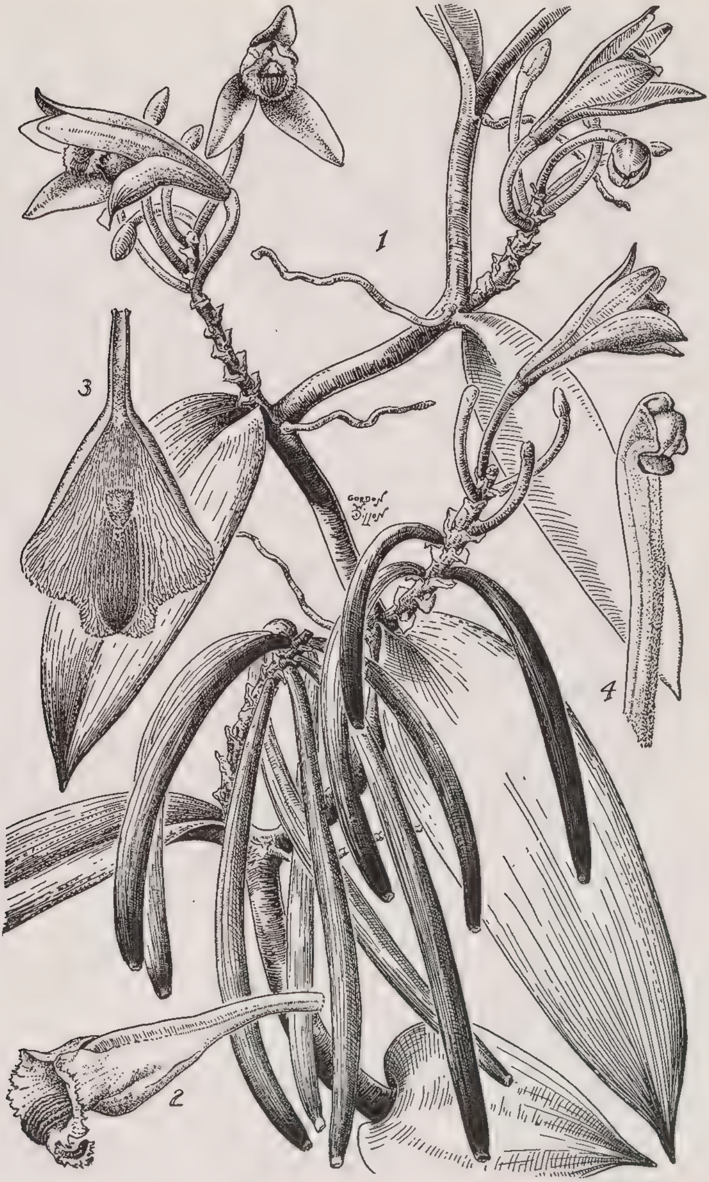


FIGURE 7. *Vanilla planifolia* G. Jacks. Drawn by G. W. Dillon.

Flowers from February to May.

General Distribution: Native to Central America and West Indies; commonly cultivated throughout the whole tropical belt.

Distribution in Lesser Antilles: Antigua!, Guadeloupe!, Dominica!, Martinique!, Grenada!.

Observation: Jackson regards Plumier's unpublished drawing of "Vanilla flore albo, fructa breviori, corallino" as representing his *V. planifolia.* A study of this plate, however, convinces us that it represents *Vanilla Eggersii* Rolfe.

Salisbury based his *Myrobroma fragrans* also on Greville's cultivated specimen, but cited in synonymy *Epidendrum rubrum* Lam. Since in his publication *Epidendrum rubrum* is an integral part of the protologue, he should have made a transfer of Lamarck's epithet. It is of further interest that Salisbury equates or rather confuses *Epidendrum rubrum* Lam. with Plumier's polynomial description referable to *Vanilla Eggersii* Rolfe.

Vanilla Pléei Portères in Bull. Soc. Bot. Fr. 98: 94, 1951; in Encycl. Biol. 46: 262, 1954.

Type: Martinique, without proper locality. Coll. Plée no. 621 (P).

Epiphytic, scandent, similar in appearance to *V. inodora*, rooted at nodes. Leaves longer than internodes, rather thin in texture, ovate to ovate-elliptic, acute to subacuminate, subcuneate at base and contracted into a short conduplicate, up to 1 cm.-long petiole, up to 19 cm. long and 8 cm. wide. Inflorescence axillary, rather slender, remotely few-flowered. Bracts foliaceous, ovate, up to 15 mm. long and 10 mm. wide. Flowers rather conspicuous. Sepals and petals similar, linear-lanceolate to linear-oblong, obtuse, up to 8.5 cm. long and 1 cm. wide. Lip entire, ovate with undulate margins, acute or obtuse in front, basally shortly adnate to column, disc provided with 5 or 6 raised veins and above base with a tuft of retrorse denticulate lamellae, up to 8 cm. long. Pedicellate ovary cylindric. Fruit unknown.

Flowering period not recorded.

General Distribution: Endemic in Lesser Antilles.

Distribution in Lesser Antilles: Martinique.

Observations: This description is based on the original diagnosis and illustration published by Portères in Bouriquet, Le Vanillier et la Vanille, Encyclopedie Biologique 46: 263, 1954. It should be noted that the plant is exceedingly similar in appearance to *Vanilla mexicana*, while the flowers are very similar if not identical with *V. Pompona.* Until further freshly collected material is available for study this species is suspected to have been based on a collection containing a mixture of separate leaves and flowers.

Vanilla Pompona Schiede in Linnaea 4: 573, 1829; Rolfe in Journ. Linn. Soc. Bot. 32: 465, 1896; Cogn. in Urb., Symb. Antill. 6: 323, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 110, 1939; Portères in Encycl. Biol. 46: 223, 1954. — **Fig. 8.**

Type: Mexico: Papantla et Colipa. Coll. Schiede no. 1043! (K, P).

Epiphytic, scandent. Stem robust, vine-like, rooted at nodes. Roots coarse. Leaves longer than internodes, fleshy, coriaceous, ovate to oblong-ovate, rarely ovate-elliptic, acute, basally rounded and contracted into a short, up to 2 cm.-long petiole, blade up to 25 cm. long and 10 cm. wide. Inflorescence sessile, racemose, up to 10 cm. long. Bracts ovate-cucullate, obtuse, up to 1.5 cm. long. Flowers greenish yellow with orange-yellow markings on lip. Sepals and petals fleshy, spreading, narrowly oblanceolate, acute or subobtuse, distinctly carinate dorsally, up to 8 cm. long and 1 cm. wide. Lip with long claw completely adnate to column, blade or free part in natural position enveloping column, tubular, when spread ovate to ovate-elliptic in outline, retuse or bilobed at apex with slightly undulate margin, disc with verrucose veins and a tuft of retrorse denticulate lamellae in center, up to 8 cm. long and 4 cm. wide. Ovary subpedicellate, up to 5 cm. long. Fruit fleshy, fusiform pod, up to 15 cm. long, aromatic.

Flowers from June to August.

GENERAL DISTRIBUTION: Central America, tropical South America, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Dominica, Guadeloupe, Martinique.

OBSERVATION: This species readily established itself as an escapee from plantations. It is not native to the Lesser Antilles.

Vanilla Wrightii Rchb. f. in Flora 48: 273, 1865; Rolfe in Journ. Linn. Soc. Bot. 32: 454, 1896; Cogn. in Urb., Symb. Antill. 6: 321, 1909; Portères in Encycl. Biol. 46: 259, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 394, 1956.

Type: Cuba, without proper locality. Coll. Wright no. 672! (AMES, K, P).

Epiphytic, scandent plants. Stem rather slender, wiry, rooted at notes. Leaves shorter than internodes, fleshy, ovate to ovate-lanceolate, rarely ovate-elliptic, acute or subacuminate, basally rounded, contracted into a short, up to 1 cm.-long petiole; blade up to 7 cm. long and 3 cm. wide. Inflorescence axillary, rather stout, sessile, fractiflex and distichous. Bracts triangular-ovate, obtuse, conduplicate, decreasing in size upwards, up to 1 cm. long, commonly shorter. Flowers rather thin in texture, pale greenish yellow, occasionally with reddish suffusion, produced remotely in succession. Sepals and petals linear-lanceolate to lanceolate-ligulate, acute, up to 5 cm. long. Lip distinctly clawed and adnate to column, blade in

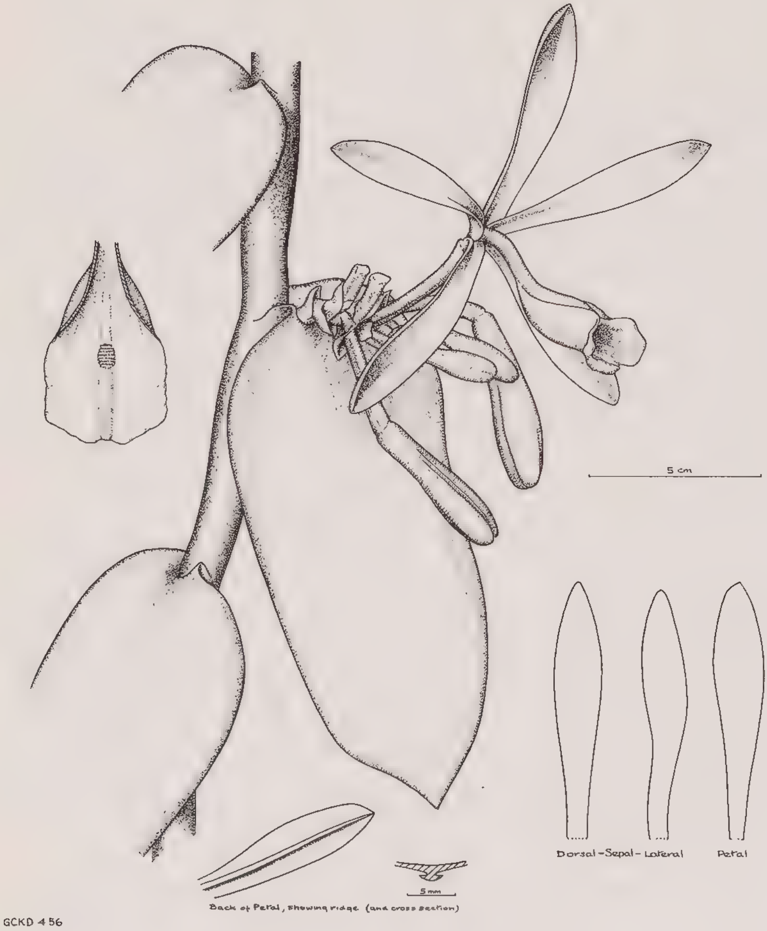


FIGURE 8. *Vanilla Pompona* Schiede. Drawn by G. C. K. Dunsterville.

natural position enfolding column, when spread cuneate-ovate, entire or obscurely lobulate, acute or subacuminate at apex with crenulate-denticulate margin, disc with scattered ramentaceous hairs. Pedicellate ovary cylindric, up to 3 cm. long. Fruit cylindric, fleshy, up to 13 cm. long.

Flowers from April to July.

General Distribution: Greater Antilles, Trinidad, Guyana, Venezuela.

Distribution in Lesser Antilles: Grenada!.

ELLEANTHUS Presl

Elleanthus Presl, Rel. Haenk. 1: 97, 1827.

Sepals free, rarely spreading. Dorsal sepal concave. Lateral sepals basally connivent, gibbose. Petals free, usually thinner in texture. Lip longer than sepals, concave with a flared apex, basally cymbiform excavate or gibbous with one or two distinct corpuscles or calli. Column erect, footless but with oblique base, winged above. Stigmata confluent into one, prominent under the triangular rostellum. Anther incumbent. Pollinia 8, in unequal massulae.

Erect or branching shrub-like plants with fibrous roots. Stem erect, ascending or decumbent, cane-like, leafy. Leaves distichous, rigid, plicate, sessile on arpophyllous, appressed leaf-sheath. Inflorescence terminal, racemose or subcapitate, commonly rather dense and many-flowered, rarely lax and few-flowered. Bracts conspicuous, but not foliaceous. Flowers rather small, but attractively colored.

Lectotype: *Elleanthus lancifolius* Presl. [Britton & Wilson in Sci. Surv. Porto Rico 5, pt. 2: 203, 1924].

Approximately 50 species in tropical America and West Indies.

Key to Species

1. Inflorescence capitate 2

1a. Inflorescence racemose or spicate 3

2. Stem and leaves glabrous; flowers rose-purple; sepals not less than 10 mm. long . . . . *E. cephalotus*

2a. Stem and underside of leaves hispid; flowers pale yellow; sepals up to 7 mm. long. . . . . *E. Caravata*

3. Flowers purple in a compact, conical raceme; disc of lip ecallose . . . . *E. Dussii*

3a. Flowers yellow in loosely-flowered spike; disc of lip with two transverse cushion-like ridges or calli . . . . *E. longibracteata*

Elleanthus Caravata (Aubl.) Rchb. f., Otia Bot. pt. 2: 62, 1881; Cogn. in Urb., Symb. Antill. 6: 562, 1910; Schultes in Amer. Orch. Soc. Bull. 25: 387, 1956. — **Fig. 9.**

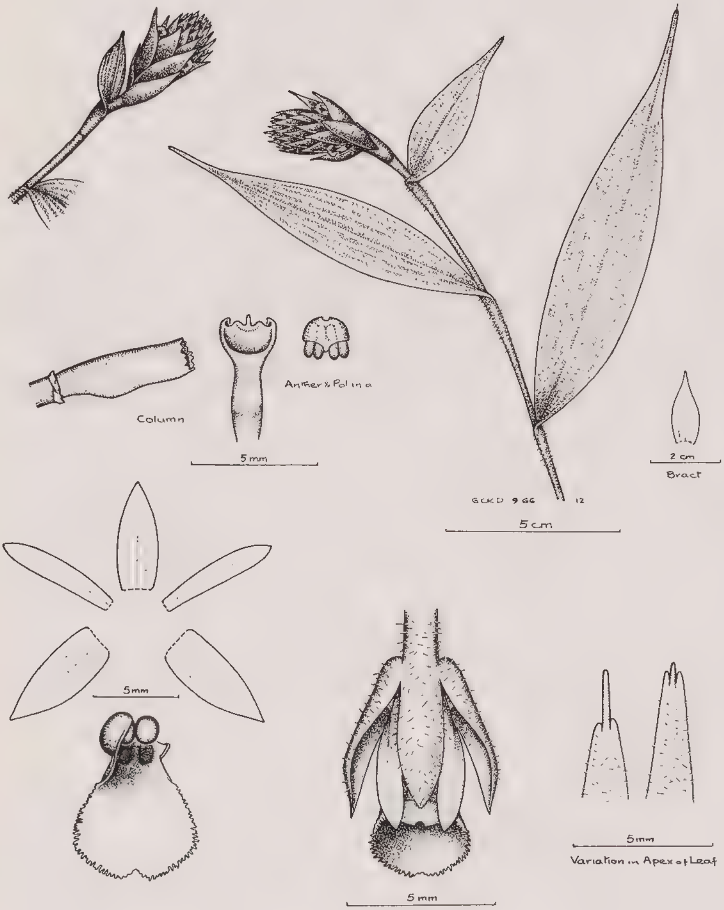


FIGURE 9. *Elleanthus Caravata* (Aubl.) Rchb. f. Drawn by G. C. K. Dunsterville.

Basionym: *Serapias Caravata* Aubl., Hist. Pl. Guin. Fr. 2: 816, 1775.
Syn.: *Cymbidium hirsutum* Willd., Sp. Pl. 4: 94, 1805, *nom. illeg.*
Type: French Guiana, without proper locality. Coll. Aublet s.n.! (LINN–S).

Evelyna lepida Rchb. f. in Hamb. Gartenz. 15: 56, 1859.
Elleanthus lepidus (Rchb. f.) Rchb. f., Otia Bot. pt. 2: 62, 1881; Rolfe in Kew Bull. 277, 1893.
Type: Without proper locality. Cultivated in Hort. Jenisch. Reichenbach Herbarium No. 51387! (W).

Terrestrial leafy plants, up to 80 cm. tall. Leaves plicate, hispid beneath, narrowly ovate-lanceolate, long acuminate, sessile on tight-fitting, densely hispid sheaths, up to 20 cm. long. Inflorescence sessile, subcapitate. Bracts reddish purple, ovate to ovate-lanceolate, acuminate, longer than flowers. Flowers small, pubescent, pale yellow. Dorsal sepal ovate, acute, concave, up to 7 mm. long. Lateral sepals oblong-ovate, acute, up to 8 mm. long. Petals oblong-linear, acute, up to 8 mm. long. Lip gibbose-saccate at base with two distinct, spherical calli within, blade cuneate-flabellate rounded or emarginate in front, the whole anterior margin being lacerate-denticulate, up to 10 mm. long. Column erect, cylindric, up to 8 mm. long. Ovary hispid.

Flowers from September to January.

GENERAL DISTRIBUTION: Guyana, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Grenada!.

Elleanthus cephalotus Garay & Sweet in Journ. Arnold Arb. 53: 390, 1972. — **Fig. 10.**

Basionym: *Bletia capitata* R. Br. in Ait. Hort. Kew. ed. 2, 5: 206, 1813.
Syn.: *Elleanthus capitatus* (R. Br.) Rchb. f. ex Cogn. in Urb., Symb. Antill. 6: 561, 1910, not (Poepp. & Endl.) Rchb. f.; Stehlé, Fl. Descr. Antill. Fr. 1: 176, 1939.
Type: West Indies, without proper locality. Introduced by Sir Joseph Banks in 1795 and flowered at Kew Gardens.! (BM).

Terrestrial plants, up to 1 m. tall. Stem caespitose, unbranched, leafy. Leaves lanceolate to ovate-lanceolate, plicate, subacuminate, up to 25 cm. long and 6 cm. wide. Inflorescence subcapitate, densely many-flowered. Peduncle short to none completely enclosed by a tubular, foliaceous bract. Bracts ovate-lanceolate, acuminate, imbricate, decreasing in size toward the center of inflorescence. Flowers rose-purple, open in succession. Dorsal sepal lanceolate-elliptic to oblong-ligulate, acute or obtuse, up to 12 mm. long. Lateral sepals similar, but somewhat oblique. Petals oblanceolate to narrowly obovate-oblanceolate, acute or obtuse with erose margins, up to 10 mm. long. Lip cuneate-flabellate in outline, truncate or slightly emarginate in front, basally cymbiform excavate with 2 distinct ovoid corpuscles or calli; margins erose denticulate. Whole lip up to 15 mm. long. Ovary glabrous, rarely subpuberulent.

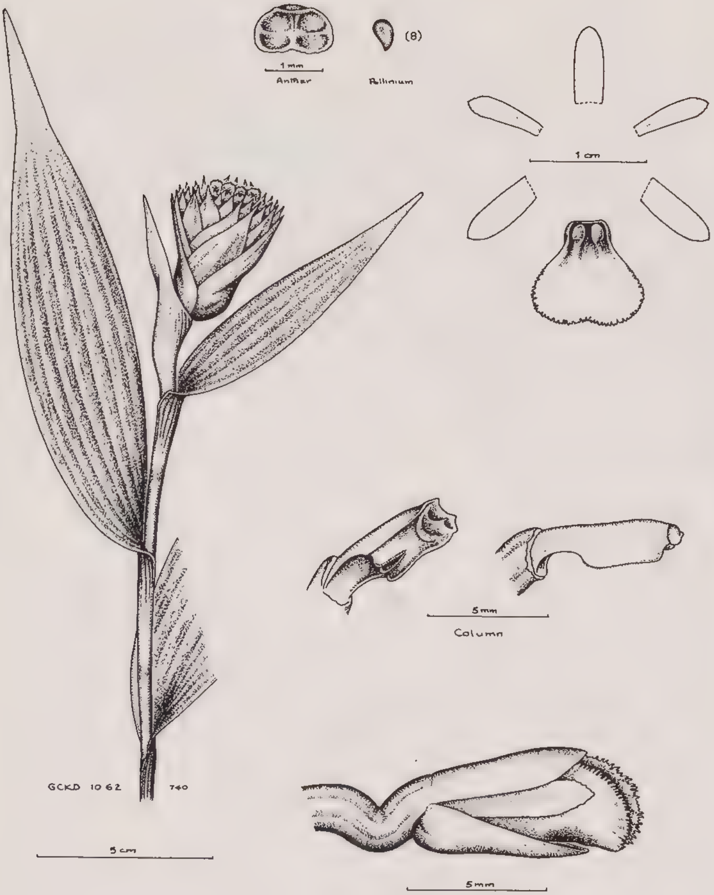


FIGURE 10. *Elleanthus cephalotus* Garay & Sweet.
Drawn by G. C. K. Dunsterville.

Flowers from January to June.

General Distribution: Tropical America and West Indies.

Distribution in Lesser Antilles: Guadeloupe!, Martinique!, St. Vincent!, Grenada!.

Elleanthus Dussii Cogn. in Urb., Symb. Antill. 6: 563, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 177, 1939.

Type: Guadeloupe, in Gommier forest, Camp-Jacob. Coll. Duss no. 3732! (p).

Terrestrial plants, up to 120 cm. tall with fascicled, fibrous roots. Stem erect, cane-like, leafy. Leaves stiff, lanceolate to lanceolate-elliptic, long acuminate, basally gradually tapering into rather tightly fitting cauline sheaths, up to 25 cm. long and 6.5 cm. wide. Inflorescence sessile, a short compact cylindric or conical, many-flowered raceme. Bracts somewhat surpassing the leaves, broadly ovate-lanceolate. Flowers purple. Dorsal sepal concave, oblong-lanceolate, acute, up to 9 mm. long. Lateral sepals basally connate, gibbose, similar to dorsal sepal, up to 10 mm. long. Petals linear, acute, up to 10 mm. long. Lip concave, broadly triangular-obovate, rounded or notched in front with denticulate margins, laterally subglobose-gibbous with two distinct corpuscles or calli inside, up to 12 mm. long. Ovary trigonous, slightly puberulent.

Flowers from March to May.

General Dstribution: Endemic in Lesser Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Martinique!.

Elleanthus longibracteatus (Lindl. ex Griseb.) Fawc., Fl. Pl. Jam. 38, 1893; Cogn. in Urb., Symb. Antill. 6: 563, 1910; Hodge in Lloydia 17: 209, 1954. — **Fig. 11.**

Basionym: *Evelyna longibracteata* Lindl. ex Griseb., Fl. Brit. W. Ind. 623, 1864.

Type: Ecuador, near San Antonio. Coll. Jameson s.n.! (k, k–l).

Syn.: *Elleanthus longibracteatus* var. *latifolius* Cogn. in Urb., Symb. Antill. 6: 564, 1910.

Type: Dominica, without proper locality. Coll. Imray no. 275! (k).

Terrestrial, leafy plants, up to 60 cm. tall. Leaves variable in shape and size, ovate-lanceolate to narrowly lanceolate, acuminate to long acuminate, up to 15 cm. long. Inflorescence terminal, spicate, rather loosely many-flowered. Bracts spreading, ovate-lanceolate, cymbiform, acuminate, longer than flowers. Flowers yellow, quaquaversal, rarely secund. Dorsal sepal oblong-ovate, acute, concave, up to 8 mm. long. Lateral sepals similar to dorsal sepal, but somewhat oblique and gibbose at base, up to 8 mm. long. Petals narrowly subspathulate, acute, up to 7 mm. long.

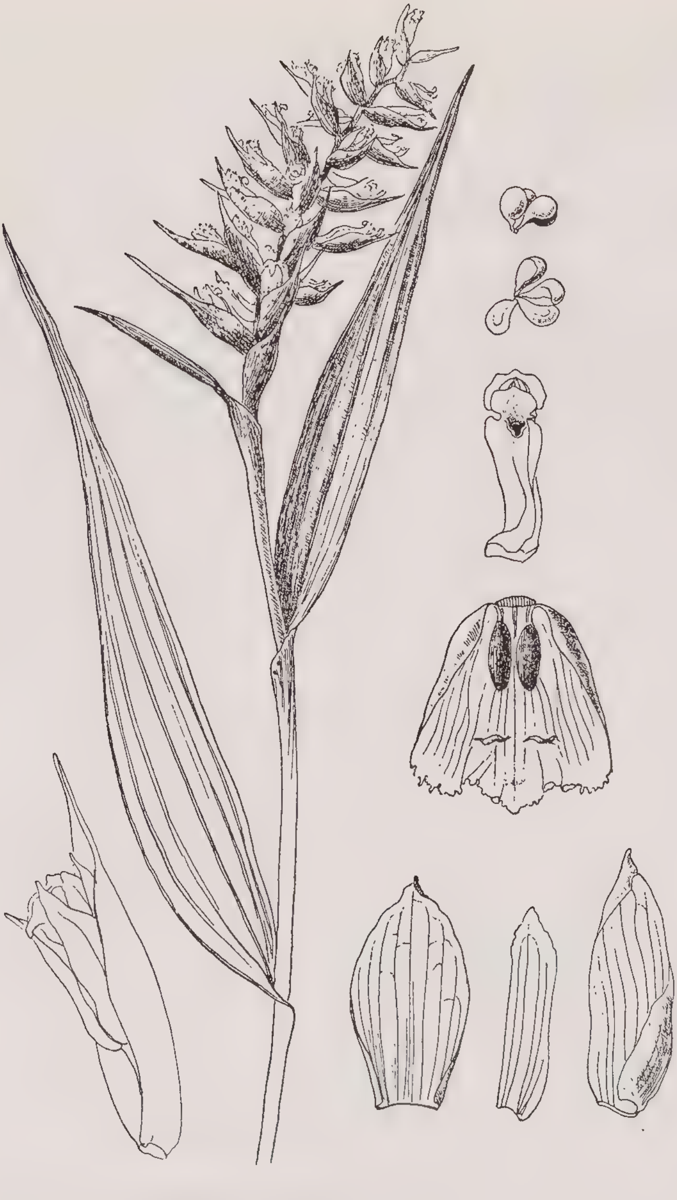


FIGURE 11. *Elleanthus longibracteatus* (Lindl. ex Griseb.) Fawc. Drawn by G. W. Dillon.

Lip concave, basally subsaccate with two distinct calli within, blade when spread cuneate-flabellate with erose-denticulate margins recurved in front; disc with two transverse cushion-like ridges at point of reflexed apex, up to 8 mm. long. Column cylindric, angulate, up to 6 mm. long. Ovary cylindric, pubescent.

Flowers from March to May.

General Distribution: Greater Antilles, Central America, Colombia, Ecuador, Peru, Bolivia.

Distribution in Lesser Antilles: Dominica!.

WULLSCHLAEGELIA Reichenbach fil.

Wullschlaegelia Rchb. f. in Bot. Zeit. 21: 131, 1863.

Sepals and petals connivent. Dorsal sepal free, cucullate. Lateral sepals decurrent on prominent column-foot, basally connate to form a sac-like mentum. Petals free, similar to dorsal sepal. Lip entire, on upper side of flower, sessile, saccate. Column very short, basally extended into a distinct foot. Stigmata confluent, under a prominent rostellum. Anther sessile. Pollinia powdery-granular.

Terrestrial saprophytic leafless herbs. Roots consist of a fascicle of fusiform tubers. Stem erect, remotely scaly. Inflorescence racemose, subdensely many-flowered. Flowers non-resupinate.

Type: *Cranichis aphylla* Sw. [Rchb. f. in Bot. Zeit. 21: 131, 1863].

Two species in tropical America and West Indies.

Wullschlaegelia aphylla (Sw.) Rchb. f. in Bot. Zeit. 21: 131, 1863; Cogn. in Urb., Symb. Antill. 6: 351, 1909; Hodge in Lloydia 17: 190, 1954. — **Fig. 12.**

Basionym: *Cranichis aphylla* Sw., Nov. Gen. & Sp. Pl., Prodr. 120, 1788.
Type: Jamaica: mountains of Clarendon. Coll. Swartz s.n.! (BM).

Terrestrial, saprophytic, leafless, up to 40 cm. tall. Rhizome short, ascending, rather densely covered with fleshy fusiform roots. Stem rather slender, erect, glandular pubescent, racemose above. Raceme subdensely many-flowered. Flowers white, puberulent throughout. Bracts ovate, acute, up to 3 mm. long. Sepals and petals connivent. Dorsal sepal oblong-linear, acute or obtuse, up to 2 mm. long. Lateral sepals decurrent on free column-foot, obliquely oblong-linear, somewhat concave, obtuse. Petals linear-oblong, obtuse, as long as dorsal sepal. Lip entire, oblong-ovate in outline, navicular, acute to obtuse in front, up to 2 mm. long, disc pubescent. Column short, basally produced into a long foot. Ovary fusiform, distinctly pedicellate.

Flowers in April and May.

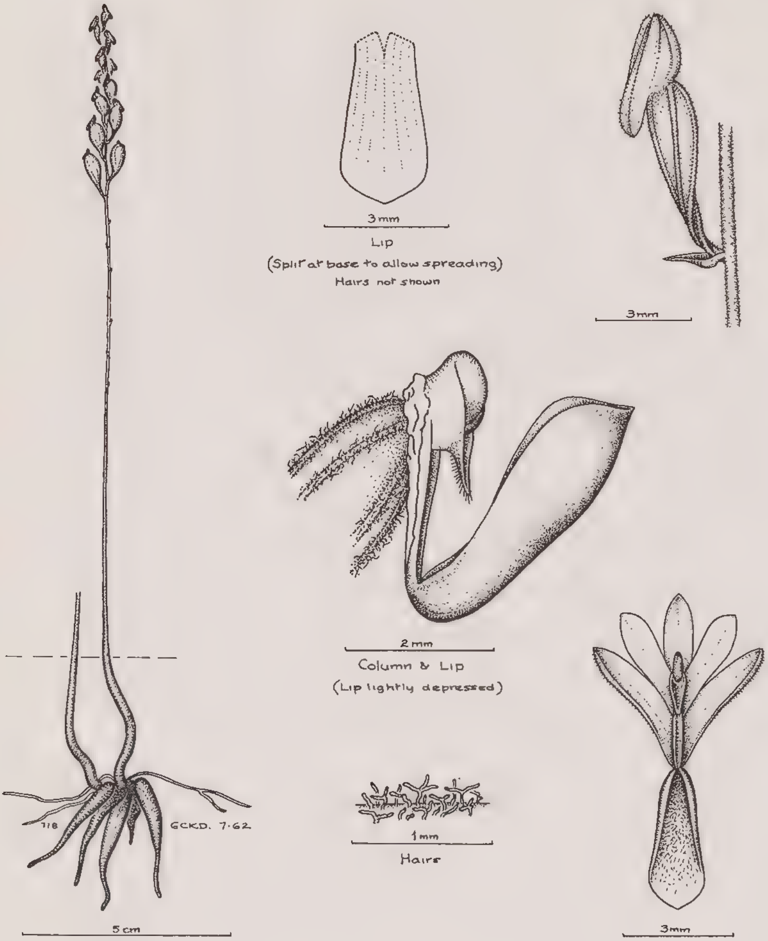


FIGURE 12. *Wullschlaegelia aphylla* (Sw.) Rchb. f.
Drawn by G. C. K. Dunsterville.

General Distribution: Greater Antilles, Central America (Honduras), South America (Venezuela, Colombia Brazil, Paraguay).

Distribution in Lesser Antilles: Dominica!.

PRESCOTTIA Lindley

Prescottia Lindl. in Hook., Exot. Fl. 2: t. 115, 1824.

Sepals thin, basally connate to form a short cup, spreading or reflexed. Petals narrower, thin, adnate to sepaline cup. Lip fleshy, galeate or cochleate, basally auriculate, the claw adnate to sepaline cup. Column short, fleshy, winged above, basally produced into a short foot which is confluent with the claw of the lip. Pollinia 4, granular; capsule ovoid.

Terrestrial herbs, glabrous or rarely pubescent throughout. Roots fleshy, often tuberous, fascicled, villous. Leaves fleshy, rosulate, rarely cauline, sessile or with well-developed petioles. Inflorescence erect, terminal. Peduncle mostly covered with bract-like sheaths. Spike commonly densely many-flowered, unbranched. Flowers minute, non-resupinate, i.e., lip uppermost.

Type: *Prescottia plantaginea* Lindl. [Lindl. in Hook. Exot. Fl. 2: t. 115, 1824]

Genus of some 25 species distributed throughout the American tropics and subtropics with greatest concentration in Brazil.

Key to Species

1. Plants commonly small; leaves with short petioles or subsessile, up to 4 cm. long; flowers small, up to 2 mm. long; lip as long as sepals .... *P. oligantha*

1a. Plants commonly stout; leaves with a distinct petiole, as long as or longer than blades, up to 20 cm. long; flowers medium size, up to 4 mm. long; lip longer than sepals .... *P. stachyodes*

Prescottia oligantha (Sw.) Lindl., Gen. and Sp. Orch. Pl. 454, 1840; Cogn. in Urb., Symb. Antill. 6: 360, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 103, 1939; Hodge in Lloydia 17: 192, 1954. — **Fig. 14.**

Basionym: *Cranichis oligantha* Sw., Nov. Gen. & Sp. Pl., Prodr. 120, 1788.
Type: Jamaica: Blue Mountains. Coll. Swartz s.n.! (BM).

Syn.: *Prescottia myosurus* Rchb. f. ex Griseb., Fl. Br. W. Ind. 640, 1864; Duss in Ann. Inst. Col. Marseille 3: 604, 1897 [as *P. myurus* Griseb. *sphalm*].
Type: Dominica, without proper locality. Coll. Imray no. 228! (K).

Terrestrial, erect plants, up to 40 cm. tall. Roots fasciculate, fleshy, densely covered with soft hairs. Leaves basal, rosulate, 1–5, ovate-oblong to obovate, suborbicular or elliptic, acute or obtuse, petiolate or subsessile, up to 4 cm. long and 3 cm. wide; scape erect, glabrous, covered with lamellate, acuminate bracts, densely many-flowered above. Spike commonly short, cylindric, occasionally elongate, slender, up to 15 cm. long. Bracts ovate-lanceolate, long acuminate, up to 12 mm. long, as long as the ovaries or longer. Flowers minute, non-resupinate, with dorsal sepal and petals reflexed. Dorsal sepal ovate, obtuse, concave, up to 2 mm. long and 1 mm. wide; lateral sepals connate at base to form a gibbous mentum, triangular-ovate, acute, somewhat concave, 2.0 mm. long and 1.5 mm. wide. Petals linear or linear-spathulate, obtuse, 1.5 mm. long and 0.5 mm. wide. Lip fleshy, subrotund, saccate with an auriculate base and apiculate apex, up to 2 mm. long and wide. Column short, fleshy, laterally winged at apex. Ovary ovoid to cylindric, up to 5 mm. long.

Flowers January to May.

General Distribution: Widespread and locally common in Florida, Greater Antilles, Central America, tropical South America.

Distribution in Lesser Antilles: Guadeloupe!, Martinique, Dominica!, Grenada!.

Prescottia stachyodes (Sw.) Lindl. in Bot. Reg. 22: sub t. 1916, 1836; Rolfe in Kew Bull. 278, 1893; Duss in Ann. Inst. Col. Marseille 3: 603, 1897; Cogn. in Urb., Symb. Antill. 6: 359, 1909; Boldingh, Fl. St. Eustat., Saba and St. Martin 41, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 102, 1939; Hodge in Lloydia 17: 192, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 392, 1956. — **Fig. 13.**

Basionym: *Cranichis stachyodes* Sw., Nov. Gen. & Sp. Pl., Prodr. 120, 1788. Type: Jamaica: Blue Mountains. Coll. Swartz s.n.! (BM).

Plants exceedingly variable in size, up to 1 meter tall, commonly shorter. Rhizome abbreviated, densely covered with fleshy villous roots. Leaves basal, fleshy, commonly 2, rarely 4, with a distinct petiole, up to 25 cm. long, blade ovate to ovate-elliptic, acute or subacuminate, rounded to subcordate at base, up to 20 cm. long and 10 cm. wide, commonly proportionately smaller. Inflorescence, including spike, much exceeding the leaves, peduncle remotely 5-sheathed. Spike densely many-flowered. Flowers green to greenish white, rather small, fleshy. Bracts as long as, or exceeding ovaries, ovate, long-acuminate. Sepals and petals circinately revolute. Dorsal sepal linear-oblong to oblong-lanceolate, obtuse, up to 4 mm. long. Lateral sepals obliquely ovate-oblong, connate at base with dorsal sepal forming a short cup, up to 5 mm. long. Petals linear, obtuse, up to 4 mm. long. Lip very fleshy, ovate, deeply cucullate, obtuse in front, basally distinctly biauriculate, up to 6 mm. long. Ovary glabrous, up to 6 mm. long.

Flowers February–May, June–August, November–December.

General Distribution: Central America, tropical South America, Greater Antilles.

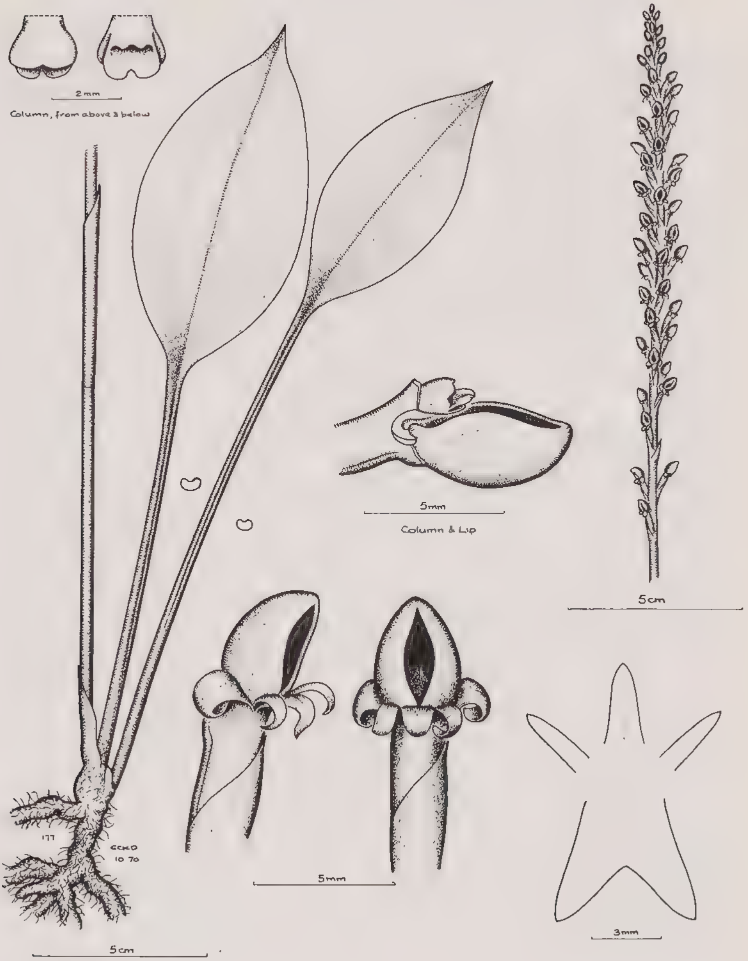


FIGURE 13. *Prescottia stachyodes* (Sw.) Lindl.
Drawn by G. C. K. Dunsterville.

Distribution in Lesser Antilles: St. Eustatius!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

PSEUDOCENTRUM Lindley

Pseudocentrum Lindl. in Journ. Linn. Soc. 3: 64, 1858.

Dorsal sepal free, rather narrow, cucullate. Lateral sepals basally connate to form either a long spur-like cylindric tube or a rounded gibbose-sac, the apical free part spreading. Petals narrow, free, spreading. Lip uppermost, adnate to base of column, 3-lobed; lateral lobes parallel with column; terminal lobe long, linear, entirely enclosed by the connate portion of the lateral sepals, with an inflexed or replicate apex. Column very short, without a foot. Rostellum erect, acuminate. Stigmata confluent, large. Anther erect, dorsal. Pollinia powdery-granular.

Terrestrial herbs with an ascending rhizomatous base and fleshy clustered roots. Stem leafy at base. Leaves several, petiolate. Peduncle with several sheaths. Inflorescence racemose or spicate, densely many-flowered.

Type: *Pseudocentrum macrostachyum* Lindl. [Lindl. in Journ. Linn. Soc. 3: 64, 1858].

Approximately 6 species in tropical America and West Indies.

Pseudocentrum guadalupense Cogn. in Urb., Symb. Antill. 6: 352, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 97, 1939.

Type: Guadeloupe, along road between Bains Jaunes and Savane a Mulets. Coll. Duss no. 3695! (br).

Terrestrial, up to 50 cm. tall. Rhizome elongate, ascending, covered with many fleshy villose roots. Stem stout, erect or ascendent, few-leaved. Leaves erect, more or less decreasing in size upwards, oblong-lanceolate, acute or shortly acuminate, up to 18 cm. long and 7 cm. wide, basally tapering into a winged up to 12 cm.-long petiole. Spike densely many-flowered, up to 15 cm. long. Bracts lanceolate, acuminate, more or less equalling length of ovary, up to 15 mm. long. Flowers greenish white. Dorsal sepal linear, acute, up to 8 mm. long. Lateral sepals connate, subglobose-saccate, apical portion free, triangular, 7 mm. long, sac 5 mm. long and 5 mm. wide. Petals linear-lanceolate, acute, spreading, 5 mm. long. Lip fleshy, sessile, 3-lobed at base; lateral lobes linear-lanceolate, acuminate, 4 mm. long; midlobe inflexed replicate, linear-ligulate, acute, up to 11 mm. long. Column short, clavate, 3 mm. high. Ovary linear-fusiform, glabrous or sparsely puberulent, up to 15 mm. long.

Flowers in November.

Genera Distribution: Endemic in Lesser Antilles.

Distribution in Lesser Antilles: Guadeloupe!.

CRANICHIS Swartz

Cranichis Sw., Nov. Gen. & Sp. Pl., Prodr. 8, 120, 1788.

Sepals free, subequal, more or less spreading. Petals much narrower, often ciliolate on margin. Lip uppermost, rather fleshy, cochleate, simple or lobed, often with conspicuously marked or colored reticulate veins. Column short, often very short, fleshy, cylindric. Anther dorsal. Pollinia 2, pulverulent. Rostellum well-developed.

Terrestrial herbs, caespitose. Roots fascicled, villous-hairy. Leaves one or two, basal, fleshy, commonly with a distinct petiole, suberect or arcuately spreading. Peduncle erect with a few adpressed sheaths, racemose above. Flowers rather small, not resupinate.

LECTOTYPE: *Cranichis muscosa* Sw. [Acuña in Bol. Tec. 60: 48, 1939].

Genus of some 30 species distributed in the American tropics and subtropics.

KEY TO SPECIES

1. Leaves from a cuneate base elliptic to ovate-elliptic; petals linear to linear-lanceolate; lip obovate to oblong-elliptic .... *C. muscosa*

1a. Leaves ovate-cordate to triangular-cordate; petals narrowly spathulate to linear-oblanceolate; lip broadly elliptic to suborbicular .... *C. ovata*

Cranichis muscosa Sw., Nov. Gen. & Sp. Pl., Prodr. 120, 1788; Rolfe in Kew Bull. 278, 1893; Duss in Ann. Inst. Col. Marseille 3: 603, 1897; Cogn. in Urb., Symb. Antill. 6: 354, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 98, 1939; Hodge in Lloydia 17: 190, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 387, 1956. — **Fig. 14.**

Type: Jamaica, without proper locality. Coll. Swartz s.n.! (BM).

Plants quite variable in size and appearance, up to 50 cm. tall, with the extremes from a short, slender, few-flowered, to a tall, robust and densely-flowered spike. Leaves basal, up to 7, on distinct, conduplicate petioles, up to 10 cm. long, commonly much shorter, blade elliptic to obliquely ovate-elliptic, acute or subobtuse at apex, at base always cuneately tapering into petiole, up to 10 cm. long and 5 cm. wide. Inflorescence erect, up to 50 cm. tall, glabrous. Peduncle provided with 3 to 4 remotely placed sheaths with ovate, foliaceous bracts, the bases of which envelop it, decreasing in size upwards. Inflorescence laxly to subdensely many-flowered, cylindrical spike, up to 15 cm. long, usually much shorter. Flowers open in succession from base of rachis. Bracts lanceolate to ovate-lanceolate, acuminate, shorter than ovaries. Flowers white. Dorsal sepal elliptic-lanceolate, cucullate, acute or subobtuse, up to 4 mm. long. Lateral sepals obliquely ovate-lanceolate, acute, as long as dorsal sepal. Petals linear to linear-lanceolate, acute to obtuse, up to 3 mm. long. Lip cucullate or strongly concave, obovate to oblong-elliptic, acute, disc with distinct markings along veins, up to 4 mm. long. Ovary cylindric, up to 8 mm. long.

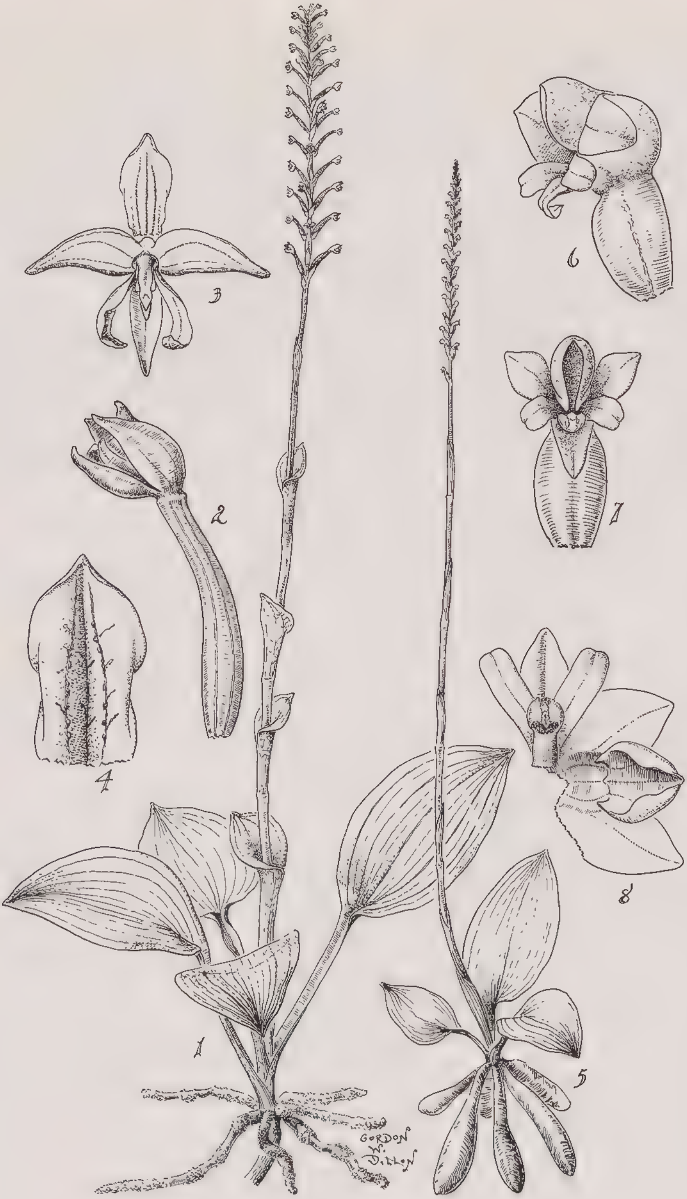


FIGURE 14. *Cranichis muscosa* Sw. 1, plant. 2, flower from side. 3, flower expanded. 4, lip. *Prescottia oligantha* (Sw.) Lindl. 5, plant. 6, flower from side. 7, flower expanded. 8, flower spread open. Drawn by G. W. Dillon.

Flowers from January to May and from September to December.

General Distribution: Florida, Central America, South America, Trinidad, Tobago, Greater Antilles.

Distribution in Lesser Antilles: St. Kitts, Montserrat, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Cranichis ovata Wikstr. in Svensk. Vetensk. Acad. Handl. 48: 73, 1827.

Type: Guadeloupe, without proper locality. Coll. Forsström s.n.! (s).

Plants rather slender, erect, up to 25 cm. tall, commonly shorter. Leaves basal, up to 4, distinctly petiolate; petioles 2 to 4 cm. long; blade ovate-cordate to triangular-cordate, occasionally oblique, acute, truncate to distinctly cordate at base, up to 4.5 cm. long and 3 cm. wide, commonly smaller. Peduncle erect, remotely 3-sheathed with foliaceous bracts, decreasing in size upwards. Rachis loosely several-flowered, glabrous. Bracts lanceolate to linear-lanceolate, acuminate, up to 5 mm. long. Flowers small, white, diaphanous. Dorsal sepal lanceolate, concave, acute, up to 2.5 mm. long and 1 mm. wide. Lateral sepals obliquely ovate, acute, 2.5 mm. long and 1.5 mm. wide. Petals narrowly spathulate to linear-oblanceolate, obtuse, 2 mm. long and 0.7 mm. wide. Lip more fleshy than other segments, broadly elliptic to suborbicular, obtuse or rounded, shallowly concave, with a greenish hue at apex, up to 2 mm. long and 1.7 mm. wide. Ovary cylindric, up to 5 mm. long.

Flowers from February through May.

General Distribution: Dominican Republic, Cordillera Central, Villa Altaracia. Coll. E. L. Ekman no. H11249! (ames, s).

Distribution in Lesser Antilles: Guadeloupe, without proper locality. Coll. Rodriguez no. 3900! (p). Dominica, Valley Hampstead River, at. 100 m. Coll. Hodge no. 3597! (ames); Lisdara. Coll. Hodge no. 2387! (ames). St. Lucia, Barre d'Isle. Coll. R. A. Howard no. 11394! (ames). Grenada, Grand Etang. Coll. R. A. Howard no. 10576! (ames).

Observation: *Cranichis ovata* generally has been considered by contemporary botanists to be a synonym of *C. muscosa* Sw. Indeed, both species have the characteristic foliaceous bracts on the peduncle. However, a closer inspection of the type specimens as well as the rich additional material preserved in the Orchid Herbarium of Oakes Ames has shown that these two species can be recognized as easily in the field as in the herbarium. The chief field check lies in the shape of the leaves which are always ovate-cordate or triangular-cordate in *C. ovata,* and in *C. muscosa* they are elliptic to ovate-elliptic from a cuneate base. The flowers as a rule tend to be twice as large in *C. muscosa* as in *C. ovata*; the lip is proportionately longer than broad in *C. muscosa,* whereas in *C. ovata* it is almost orbicular. *Cranichis ovata* is essentially a very rare plant in both the Lesser and Greater Antilles. From the Dominican Republic we have seen only one collection.

PONTHIEVA R. Brown

Ponthieva R. Br. in Ait., Hort. Kew, ed. 2, 5: 199, 1813.

Sepals free, spreading; lateral sepals occasionally connate. Petals always asymmetrical, adnate much above the base to the side of the column. Lip small, fleshy, uppermost, adnate to the column. Column fleshy, cylindric, dilated above. Anther incumbent. Pollinia 2, pulverulent.

Terrestrial herbs. Roots fasciculate, villous. Leaves mostly basal, sessile or petioled, erect or patent. Peduncle erect, pubescent, usually elongate, terminated by a lax, few- to many-flowered raceme. Flowers not resupinate, mostly inconspicuous, delicate in texture.

TYPE: *Neottia glandulosa* Sims. [R. Br. in Ait., Hort. Kew, ed. 2, 5: 199, 1813].

Genus of some 30 species distributed in the American tropics and subtropics.

KEY TO SPECIES

1. Leaves long petiolate; blades rounded at base; lip sessile, entire .... *P. petiolata*
1a. Leaves short petiolate; blades gradually tapering at base; lip unguiculate, lobulate .... *P. racemosa*

Ponthieva petiolata Lindl. in Bot. Reg. 9: t. 760, 1823; Rolfe in Kew Bull. 278, 1893; Duss in Ann. Inst. Col. Marseille 3: 602, 1897; Cogn. in Urb., Symb. Antill. 6: 362, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 105, 1939; Hodge in Lloydia 17: 193, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 392, 1956.

Type: St. Vincent, without proper locality. Coll. McRae s.n.! (K–L).

Plants rather stout, erect, up to 75 cm. tall. Leaves fasciculate, up to 7, blade elliptic to ovate-elliptic, rarely ovate-lanceolate, acute or subacuminate, up to 15 cm. long and 9 cm. wide, commonly proportionately smaller, abruptly contracted into prominent petioles up to 12 cm. long. Inflorescence pubescent throughout; peduncle remotely bracteolate, terminating in a loosely many-flowered raceme, occasionally up to 35 cm. long. Bracts pubescent, ovate-lanceolate, acute, shorter than the pedicellate ovaries, up to 12 mm. long. Flowers greenish white with purple suffusion or rose-purple. Sepals spreading, externally pilose. Dorsal sepal narrowly ovate, acute, up to 8 mm. long. Lateral sepals obliquely ovate-lanceolate, acute, up to 10 mm. long. Petals with a short claw, obliquely ovate, acute, connivent at tip, up to 10 mm. long. Lip sessile, concave, entire, rhomboid in outline, obtuse in front, up to 6 mm. long. disc ecallous. Pedicellate ovary glandular, pubescent, up to 2.5 cm. long.

Flowers from January to April and July to December.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Ponthieva racemosa (Walt.) Mohr in Contr. U.S. Nat. Herb. 6: 460, 1901; Stehlé, Fl. Descr. Antill. Fr. 1: 106, 1939; Hodge in Lloydia 17: 193, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 392, 1956. — **Fig. 15.**

Basionym: *Arethusa racemosa* Walt., Fl. Carol. 222, 1788.
Type: U.S.A.: South Carolina, without proper locality. Coll. Walter s.n.! (BM).

Syn.: *Neottia glandulosa* Sims in Bot. Mag. 22: t. 842, 1805.
Ponthieva glandulosa (Sims) R. Br. in Ait., Hort. Kew, ed. 2, 5: 200, 1813; Duss in Ann. Inst. Col. Marseille 3: 602, 1897; Cogn. in Urb. Symb. Antill. 6: 363, 1909.
Type: West Indies: Coll. Anderson s.n., flowered by E. I. A. Woodford. No specimen preserved. The illustration in the Botanical Magazine t. 842 is considered here as representing the holotype.

Plants up to 60 cm. tall, but commonly shorter. Leaves basal, more or less in form of rosette, sessile or with a conduplicate petiole, gradually expanding into elliptic to lanceolate-elliptic, often oblique, acute blades, up to 15 cm. long and 5 cm. wide. Inflorescence erect, glandular pubescent throughout. Peduncle remotely several sheathed. Raceme laxly many-flowered. Bracts ovate-lanceolate, acute or subacuminate, up to 1 cm. long. Flowers spreading, greenish to greenish white, ovaries inserted at right angles on rachis. Sepals externally pubescent. Dorsal sepal ovate to ovate-elliptic, acute, up to 7 mm. long. Lateral sepals broadly and obliquely ovate to ovate-elliptic, acute, as long as dorsal sepal. Petals from an unguiculate base obliquely triangular to dolabriform, acute, glabrous, up to 6 mm. long. Lip up to 7 mm. long, rather fleshy, distinctly unguiculate, cymbiform, suborbicular in outline, in front provided with a fleshy conduplicate linear lobe, disc with a conspicuous fleshy callus in front of claw. Ovary short pedicellate, cylindric, pubescent.

Flowers from January to April.

General Distribution: Southern U.S.; Central America, northern South America, Greater Antilles.

Distribution in Lesser Antilles: St. Kitts, Guadeloupe, Dominica!, Martinique, St. Vincent!, Grenada!

SPIRANTHES L. C. Richard

Spiranthes L. C. Rich., Orch. Eur. Annot. 20, 1817.

Sepals free. Dorsal sepal erect, connivent with the petals to form a hood. Lateral sepals oblique, porrect or more or less spreading, basally

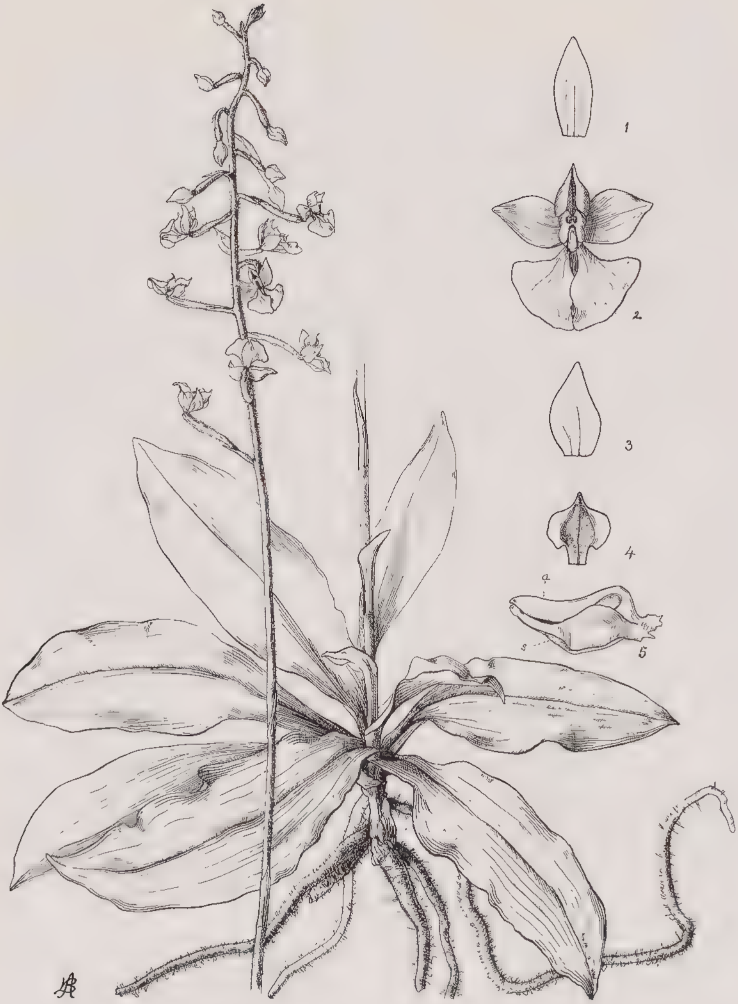


FIGURE 15. *Ponthieva racemosa* (Walt.) Mohr. Plant. 1, dorsal sepal. 2, flower expanded. 3, lateral sepal. 4, lip expanded. 5, side view of column with anther and stigma. Drawn by Blanche Ames Ames.

often decurrent on the ovary forming an ovary-spur either embedded or free in the form of an acute or rounded gibbous mentum. Lip either sessile or with a short claw, entire or lobed, the sides embracing the column or parallel with it, apically commonly recurved, basally often with a pair of thickened callosities. Column rather short, in front more or less obliquely decurrent on ovary, at times basally extended into a column-foot. Stigmata two, on each side under the rather prominent, more or less bifid rostellum. Anther erect, dorsal. Pollinia mealy, on more or less short caudicles with a gland.

Terrestrial herbs with fasciculate, fleshy, villous roots. Leaves commonly basal, occasionally cauline, often petiolate. Peduncle erect, slender or robust, enclosed by sheaths. Inflorescence terminal, racemose or spicate, few- to many-flowered.

LECTOTYPE: *Ophrys spiralis* L. [Green in Prop. Brit. Bot. 100, 1929].

Approximately 200 species with the greatest concentration in the tropics and subtropics of America and West Indies, with a few species in temperate North America and Eurasia.

Key to Species

1. Plants commonly leafless at flowering time 2
1a. Plants with leaves at flowering time 3
2. Spike spirally twisted; flowers up to 6 mm. long; lip lobed ...... *S. torta*
2a. Spike allsided; flowers up to 20 mm. long; lip entire ...... *S. lanceolata*
3. Flowers with a distinct protruding mentum formed by the obliquely decurrent column-foot and lateral sepals 4
3a. Flowers without protruding mentum 5
4. Leaves with long, thin petiole; blade ovate to ovate-elliptic; flowers up to 8 mm. long; lip unguiculate; sagittate at base .... *S. adnata*
4a. Leaves subsessile, oblong-ligulate to oblong-lanceolate with a gradually tapering base; flowers up to 20 mm. long; lip sessile, ovate-lanceolate .... *S. lanceolata*
5. Flowers showy, with up to 2 cm.-long sepals; lateral sepals reflexed, decurrent on prominent column-foot .... *S. acaulis*
5a. Flowers small with less than 1 cm.-long sepals; lateral sepals somewhat oblique at base of sessile, footless column 6
6. Sepals and petals acuminate with divaricately spreading apical halves; lip entire .... *S. polyantha*
6a. Sepals and petals acute or obtuse, parallel along entire length; lip lobed 7
7. Leaf one, linear to linear-lanceolate; spike spirally twisted ...... *S. torta*
7a. Leaves several, petiolate, ovate to ovate-elliptic; spike not twisted .. 8
8. Lip subpandurate, with the apical, more or less reniform lobe, separated from basal part by a distinct isthmus .... *S. elata*
8a. Lip ovate, with the apical subquadrate, truncate lobe narrower than the basal part without an isthmus .... *S. cranichoides*

Spiranthes acaulis (J. E. Smith) Cogn. in Mart. Fl. Bras. 3 pt., 4: 221, 1895; Schultes in Amer. Orch. Bull. 25: 394, 1956. — **Fig. 16.**

Basionym: *Neottia acaulis* J. E. Smith, Exot. Bot. 2: 91, t. 105, 1806.
Type: Trinidad, without proper locality. Collector unknown.! (LINN–S).

Terrestrial, up to 80 cm. tall, commonly shorter. Leaves basal, commonly 3, upper surface with white maculations, elliptic to obovate-elliptic, acute or obtuse, basally gradually tapering into a conduplicate short petiole, including petiole up to 35 cm. long and 7 cm. wide. Inflorescence long pedunculate, commonly enclosed by imbricating sheaths, glabrous. Rachis sparsely puberulent, loosely several- to many-flowered. Bracts narrowly ovate-lanceolate, acuminate, as long as or shorter than the ovaries, up to 3 cm. long. Flowers externally green and whitish within, rather large. Dorsal sepal lanceolate-oblong, acute or subobtuse, up to 2 cm. long and 4 mm. wide at base. Lateral sepals reflexed, oblong-falcate, decurrent on prominent column-foot, free portion up to 2 cm. long and 6 mm. wide. Petals linear-oblong, obtuse, strongly connivent with dorsal sepal to form a hood over column, up to 2 cm. long and 3 mm. wide. Lip linear-oblong in outline, sagittate at base, then cuneately dilated toward apex, just below it strongly constricted, pandurate, terminating in a semicircular reflexed lobe, disc puberulent throughout and provided at constriction with a V-shaped ridge, decurrent on the apical lobe. Whole lip up to 3.5 cm. long and 8 mm. wide across apical lobe. Ovary cylindric, up to 4 cm. long. Column short, erect, up to 1 cm. long, basally produced into a 3 cm.-long foot decurrent on ovary.

Flowers from January to April.

GENERAL DISTRIBUTION: Central America, tropical South America, Trinidad, Tobago.

DISTRIBUTION IN LESSER ANTILLES: Grenada, near Lake Grand Etang. Coll. Broadway no. 1224!.

Spiranthes adnata (Sw.) Benth. in Journ. Linn. Soc. Bot. 18: 344, 1881; Hodge in Lloydia 17: 188, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 394, 1956. — **Fig. 17.**

Basionym: *Satyrium adnatum* Sw., Nov. Gen. & Sp. Pl., Prodr. 118, 1788.
Syn.: *Pelexia adnata* (Sw.) Spreng., Syst. Veg. 3: 704, 1826; Cogn. in Urb., Symb. Antill. 6: 329, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 80, 1939.
Lectotype: Jamaica, without proper locality. Swartz s.n.! (UPS).

Terrestrial, erect, up to 50 cm. tall. Roots fleshy, villose. Leaves basal, 2–5; petiole slender up to 15 cm. long; blade ovate to ovate-elliptic, somewhat oblique, acute, up to 10 cm. long and 4 cm. wide. Peduncle glabrous, remotely several sheathed, up to 35 cm. long. Spike pubescent, loosely many-flowered. Bracts ovate-lanceolate, acuminate, usually somewhat longer than ovaries. Flowers greenish white. Dorsal sepal cucullate, ovate to ovate-elliptic, obtuse, extremely puberulent towards base, up to 8 mm.

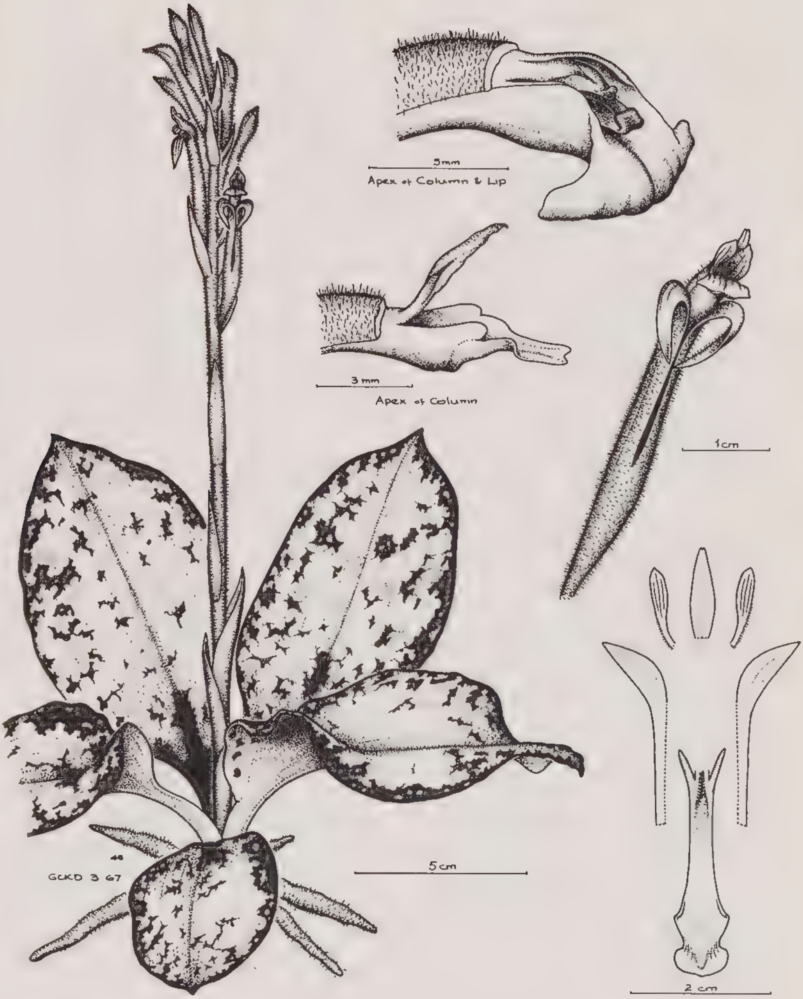


FIGURE 16. *Spiranthes acaulis* (J. E. Sm.) Cogn.
Drawn by G. C. K. Dunsterville.

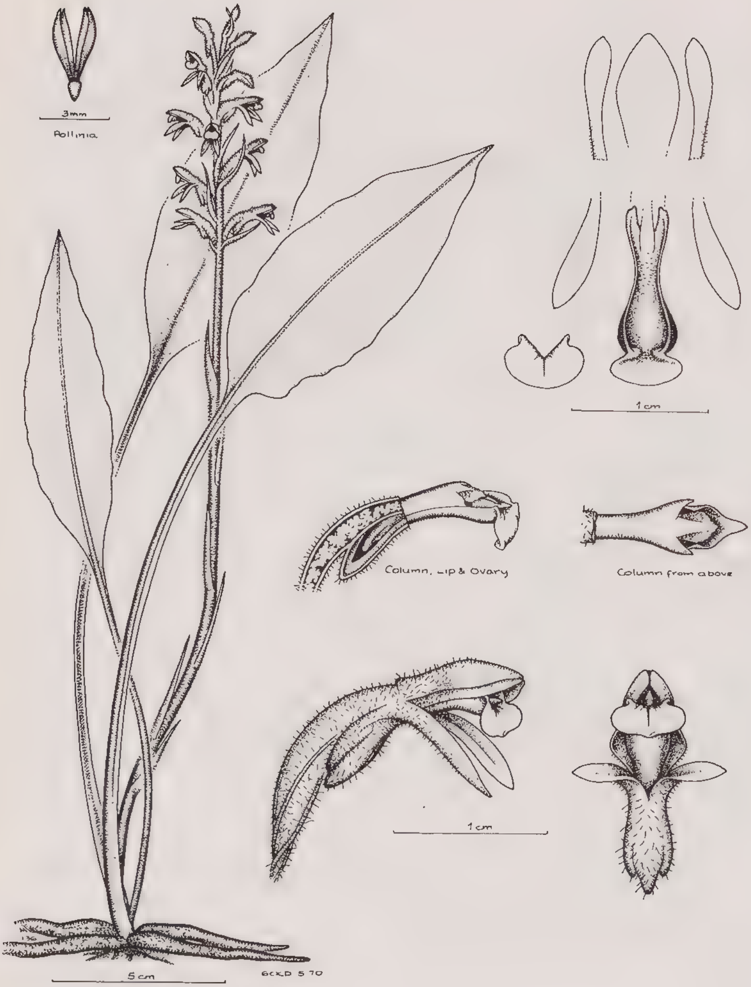


FIGURE 17. *Spiranthes adnata* (Sw.) Benth. Drawn by G. C. K. Dunsterville.

long and 4 mm. wide. Lateral sepals obliquely decurrent on column-foot, free part linear-oblong, acute, up to 9 mm. long and 2 mm. wide. Petals narrowly linear-oblong or linear-oblanceolate, acute, up to 8 mm. long and 1.5 mm. wide. Lip unguiculate, from a sagittate base subcuneate, slightly dilated towards apex, at apical fourth suddenly constricted and produced into a suborbicular undulately crispate reflexed apical lobe, disc puberulent. Whole lip up to 12 mm. long and 3.5 mm. wide across apical lobe. Column erect, up to 6 mm. high, basally produced into up to 7 mm.-long foot which is obliquely decurrent on ovary, terminating in a free apex where it forms with the lateral sepals a saccate nectary. Ovary puberulent, up to 14 mm. long.

Flowers from February to September.

General Distribution: Mexico, Honduras, British Honduras, Venezuela, Bahamas, Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Martinique!, St. Vincent!, Grenada!.

Spiranthes cranichoides (Griseb.) Cogn. in Urb., Symb. Antill. 6: 338, 1909. — **Fig. 18.**

Basionym: *Pelexia cranichoides* Griseb., Cat. Pl. Cub. 269, 1866.
Type: Cuba: Monte Lebano. Coll. Wright no. 3293! (AMES).

Terrestrial, up to 40 cm. tall. Roots fasciculate, fleshy, villose. Leaves basal, 3 or more, distinctly petiolate. Blade obliquely ovate to ovate-elliptic, acute to subacuminate, occasionally purplish beneath, rarely variegated, up to 5.5 cm. long and 3 cm. wide, tapering into a slender up to 3.5 cm.-long petiole. Peduncle up to 35 cm. long, erect, slender, glabrous below, pubescent above, enclosed by sheathing bracts. Rachis loosely many-flowered, pubescent, up to 5 cm. long. Bracts lanceolate, acuminate, up to 12 mm. long, longer than the almost sessile ovaries. Flowers rather small, greenish to greenish white with purplish suffusion. Dorsal sepal ovate-oblong to oblong-elliptic, obtuse, distinctly concave, up to 5 mm. long, dorsally especially towards base somewhat puberulent. Lateral sepals obliquely oblong-lanceolate to linear-lanceolate, acute to obtuse, dorsally near base somewhat puberulent, as long as or somewhat longer than the dorsal sepal. Petals narrowly spathulate to oblanceolate, acute to subobtuse, connivent with dorsal sepal forming an open hood with apices spreading, up to 4.5 mm. long. Lip white, somewhat gibbose, ovate in outline, from a somewhat cuneate base 3-lobed at apical third. Lateral lobes rectangular; midlobe subquadrate with a truncate or obscurely 3-lobulate apex, narrower than the basal part of the blade, disc on both sides of column provided with a small fleshy tubercle. Whole lip up to 5 mm. long and 2.5 mm. wide. Ovary cylindric, slightly arcuate and sparsely puberulent.

Flowers during February and March.

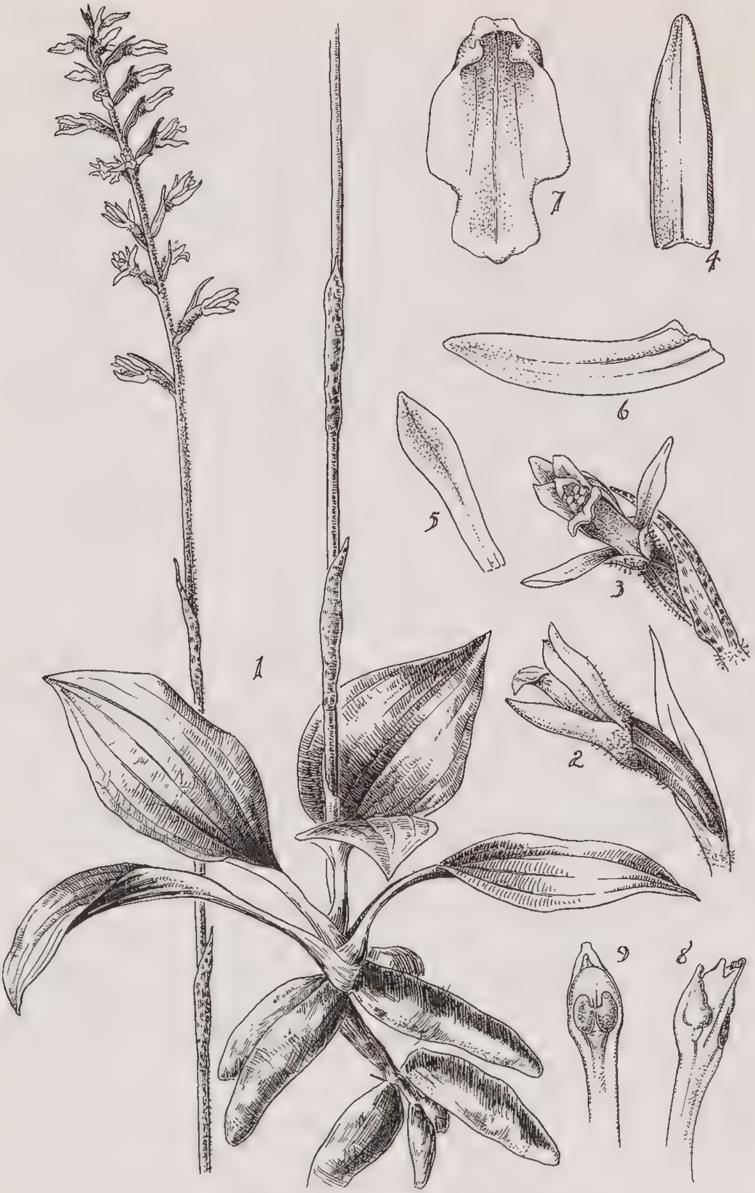


FIGURE 18. *Spiranthes cranichoides* (Griseb.) Cogn. 1, plant. 2 and 3, flower with bract. 4, dorsal sepal. 5, petal. 6, lateral sepal. 7, lip expanded. 8 and 9, column. Redrawn from Blanche Ames Ames by G. W. Dillon.

General Distribution: Florida, Central America, Greater Antilles, Venezuela.

Distribution in Lesser Antilles: Guadeloupe: Sofaya. Coll. Stehlé no. 2918! (AMES, P), Coll. Rodriguez no. 4242! (P); Les Saintes, Terre de Bas. Coll. Rodriguez no. 4009! (P). Dominica: Lisdara. Coll. Hodge no. 2362! (AMES). Grenada: Grand Etang. Coll. R. A. Howard no. 10642! (AMES).

Spiranthes elata (Sw.) L. C. Rich., Orch. Eur. Annot. 37, 1817; Cogn. in Urb., Symb. Antill. 6: 336, 1909; Boldingh, Fl. St. Eustat., Saba and St. Martin 40, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 86, 1939; Hodge in Lloydia 17: 188, 1939; Schultes in Amer. Orch. Soc. Bull. 25: 394, 1956. — **Fig. 19.**

Basionym: *Satyrium elatum* Sw., Nov. Gen. & Sp. Pl., Prodr. 119, 1788.
Syn.: *Sarcoglotis elata* (Sw.) P. N. Don in Hort. Cantabr. ed. 13, 590, 1845.
Type: Jamaica, without proper locality. Coll. Swartz s.n.! (BM).

Neottia minor Jacq., Collect. 3: 172, 1791. Based on *Helleborine foliis liliaceis, asphodeli radice*, Plum. Cat. 9, 1703, and Icon. Burm. t. 190, 1759.
Type: Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Spiranthes elata var. *longipetiolata* Cogn. in Mart. Fl. Bras. 3 pt., 4: 192, 1895; in Urb., Symb. Antill. 6: 338, 1909.
Type: Antigua, without proper locality. Coll. Wullschlaegel no. 575.

Terrestrial, up to 60 cm. tall, commonly shorter. Roots fleshy, fasciculate. Leaves basal, 4-6; petiole up to 10 cm. long, rather slender, commonly much shorter; blade ovate to ovate-elliptic, acute or subobtuse, up to 9 cm. long and 4.5 cm. wide, commonly smaller, very rarely leaves may be narrowly lanceolate, subpetiolate (type as *Neottia bicolor* Ker-Gawl). Peduncle erect, loosely several-sheathed. Rachis spicate, loosely subdensely many-flowered. Bracts linear-lanceolate, long acuminate, up to 12 mm. long. Flowers greenish or greenish white with white lip. Sepals somewhat gibbose at base, externally slightly puberulent. Dorsal sepal concave, up to 4 mm. long. Lateral sepals linear-oblanceolate, up to 5 mm. long. Petals oblanceolate, somewhat shorter than dorsal sepal. Lip shortly and broadly unguiculate, subcordate, then quadrate-oblong, subpandurate at apical third, terminating in a transversely semi-ovate to reniform undulate lobe, disc puberulent, bicallous at base. Column up to 3 mm. long. Ovary cylindric, much shorter than subtending bracts.

Flowers from February through May.

General Distribution: Florida, Greater Antilles, Central America, tropical South America.

Distribution in Lesser Antiles: St. Martin!, St. Eustatius!, Montserrat!, Antigua!, Guadeloupe!, Dominica!, Martinique!, Grenada!.

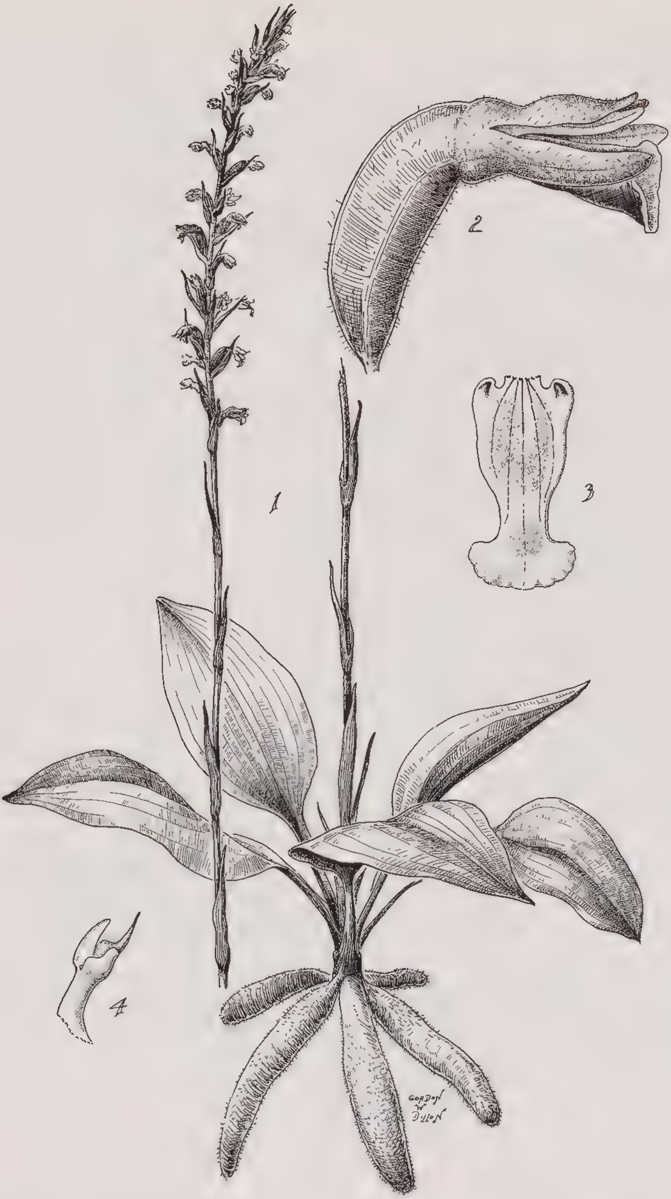


FIGURE 19. *Spiranthes elata* (Sw.) L. C. Rich. 1, plant. 2, flower. 3, lip expanded. 4, column. Drawn by G. W. Dillon.

OBSERVATION: The specimen of *Spiranthes bicolor* (Ker-Gawl) Lindl. reported by Cogniaux from Montserrat in Urban, Symb. Antill. 6: 336, 1909, is referable to *S. elata* (Sw.) L. C. Rich.

Spiranthes lanceolata (Aubl.) Leon in Cont. Ocas. Mus. Hist. Nat. Col. de la Salle Acta 8: 358, 1946. — **Fig. 20.**

Basionym: *Limodorum lanceolatum* Aubl., Pl. Guian. 2: 821, 1775. Based on *Helleborine purpurea, asphodeli radice*, Plum. Cat. 9, 1703 and Icon. Burm. t. 181, f. 2, 1759.

Syn.: *Stenorrhynchus lanceolatus* (Aubl.) Rich. ex Spreng., Syst. Veg. 3: 710, 1826; Gooding, Loveless & Proctor, Fl. Barbados 113, 1965.

Type: Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Satyrium orchioides Sw., Nov. Gen. & Sp. Pl., Prodr. 118, 1788.

Spiranthes orchioides (Sw.) A. Rich. in Sagra, Hist. Ill. Cuba 11: 252, 1850; Rolfe in Kew Bull. 278, 1893; Hodge in Lloydia 17: 188, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 394, 1956.

Stenorrhynchus orchioides (Sw.) Spreng., Syst. Veg. 3: 709, 1826; Duss in Ann. Inst. Col. Marseille 3: 605, 1897; Cogn. in Urb., Symb. Antill. 6: 332, 1909; Boldingh, Fl. St. Eustat., Saba and St. Martin 40, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 81, 1939.

Type: Jamaica, without proper locality. Coll. Swartz s.n.! (UPS).

Neottia aphylla Hook. in Bot. Mag. 55: t. 2797, 1828.

Type: St. Vincent, without proper locality. Coll. Guilding s.n.! (K).

Terrestrial, up to 60 cm. tall. Roots fasciculate, fleshy. Leaves basal, 2–3, commonly developing after flowering, occasionally concurrent, oblong-ligulate to oblong-lanceolate rarely oblanceolate, acute or obtuse, gradually tapering towards a subpetiolate base, up to 30 cm. long and 3 cm. wide. Scape erect, stout, glabrous or puberulent with numerous often imbricating sheaths. Rachis puberulent, rather densely many-flowered. Bracts lanceolate, acuminate, up to 1.5 cm. long. Flowers variable in color, from greenish white to brick-red or deep crimson. Dorsal sepal lanceolate, acuminate, up to 2 cm. long. Lateral sepals oblique, adnate to decurrent column-foot, lanceolate, acuminate, up to 2.5 cm. long. Petals connivent with dorsal sepal to form a hood, falcate-lanceolate, acuminate, up to 2 cm. long. Lip sessile, ovate-lanceolate to lanceolate-elliptic, acuminate, apical portion recurved, up to 2.5 cm. long, disc at base provided with a pair of linear calli. Ovary subsessile, ovoid, up to 1.5 cm. long.

Flowers from January to May.

GENERAL DISTRIBUTION: Florida, Central America, tropical South America, Greater Antilles, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, St. Eustatius, Antigua, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados, Grenada!.

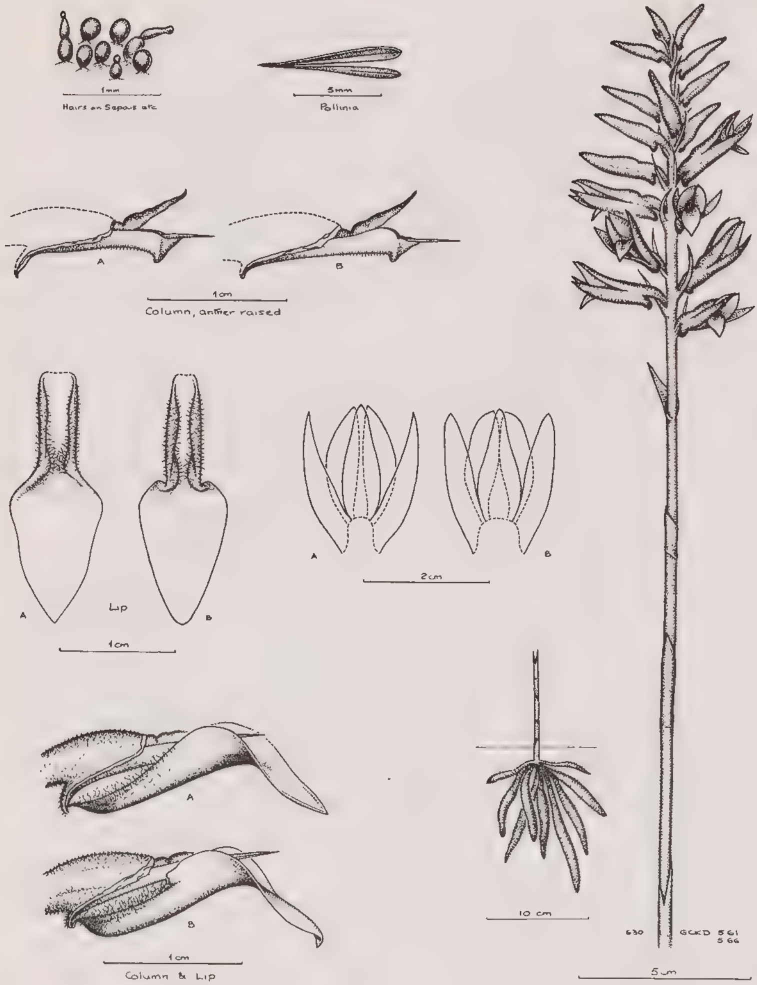


FIGURE 20. *Spiranthes lanceolata* (Aubl.) Leon.
Drawn by G. C. K. Dunsterville.

Spiranthes polyantha Rchb. f. in Linnaea 18: 408, 1844. — **Fig. 21.**

Type: Mexico, Chapultepec. Coll. Leibold s.n.! (W).

Terrestrial, up to 40 cm. tall. Roots fasciculate, fleshy, villose. Leaves basal, 2–3, elliptic to oblong-elliptic, rarely linear-lanceolate, acute or obtuse, basally tapering into a distinct short up to 3 cm.-long petiole, including the petiole up to 14 cm. long and 3 cm. wide, commonly smaller. Peduncle erect, rather slender, enclosed by acuminate sheaths, glabrous throughout. Rachis spirally twisted, loosely many-flowered, up to 15 cm. long. Bracts lanceolate, long-acuminate, up to 1 cm. long. Flowers greenish, rarely with purple suffusion. Sepals and petals parallel with one another up to middle, apical halves abruptly and divaricately spreading. Dorsal sepal linear-lanceolate, acuminate, up to 5 mm. long. Lateral sepals linear-oblong, acute, as long as dorsal sepal. Petals oblong-linear, falcate, acute, up to 4 mm. long. Lip narrowly ovate-lanceolate, somewhat concave, acute or subacuminate, up to 5 mm. long. Ovary cylindric, subsessile, up to 5 mm. long.

Flowers from January to March.

General Distribution: Florida, Central America, Bahamas, Greater Antilles.

Distribution in Lesser Antilles: Antigua: St. Georges. Coll. Box no. 1404! (AMES, US).

Spiranthes torta (Thunb.) Garay & Sweet, *comb. nov.* — **Fig. 22.**

Basionym: *Satyrium spirale* Sw., Nov. Gen. & Sp. Pl., Prodr. 118, 1788, not *Ophrys spiralis* Linn. 1753.

Syn.: *Ophrys torta* Thunb., Mus. Nat. Acad. Upsal. (Dissert.) 9: 136, 1791.
Neottia tortilis Sw. in Kongl. Vetensk. Acad. Handl. 21: 226, 1800.
Spiranthes tortilis (Sw.) L. C. Rich., Orch. Eur. Annot. 37: 1817; Duss in Ann. Inst. Col. Marseille 3: 604, 1897; Cogn. in Urb., Symb. Antill. 6: 342, 1909; Hodge in Lloydia 17: 188, 1954.

Type: Jamaica, without proper locality. Coll. Swartz s.n.! (BM, UPS).

Ophrys peruviana Aubl., Hist. Pl. Guian. Fr. 2: 816, 1775, based on *Helleborine spiralis, flore albo*, Plum. Cat. 9, 1703 and Icon. Burm. t. 183, f. 1, 1759, not *Spiranthes peruviana* Presl, 1827.
Ophrys quinquelobata Poir. in Lam., Encycl. 4: 568, 1798, *nom. illeg.*
Spiranthes quinquelobata (Poir.) Urb., in Fedde Rep. 15: 305, 1918; Stehlé, Fl. Descr. Antill. Fr. 1: 87, 1939.

Type: West Indies (probably Haiti), without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Spiranthes Swartzii Krause in Beih. Bot. Centralbl. 32, pt. 2: 342, 1914.

Type: Dominica, without proper locality. Coll. Krause no. 3858.

Terrestrial, erect, up to 80 cm. tall, commonly shorter. Roots fleshy, villose. Leaves single, basal, linear to linear-lanceolate, acuminate, com-

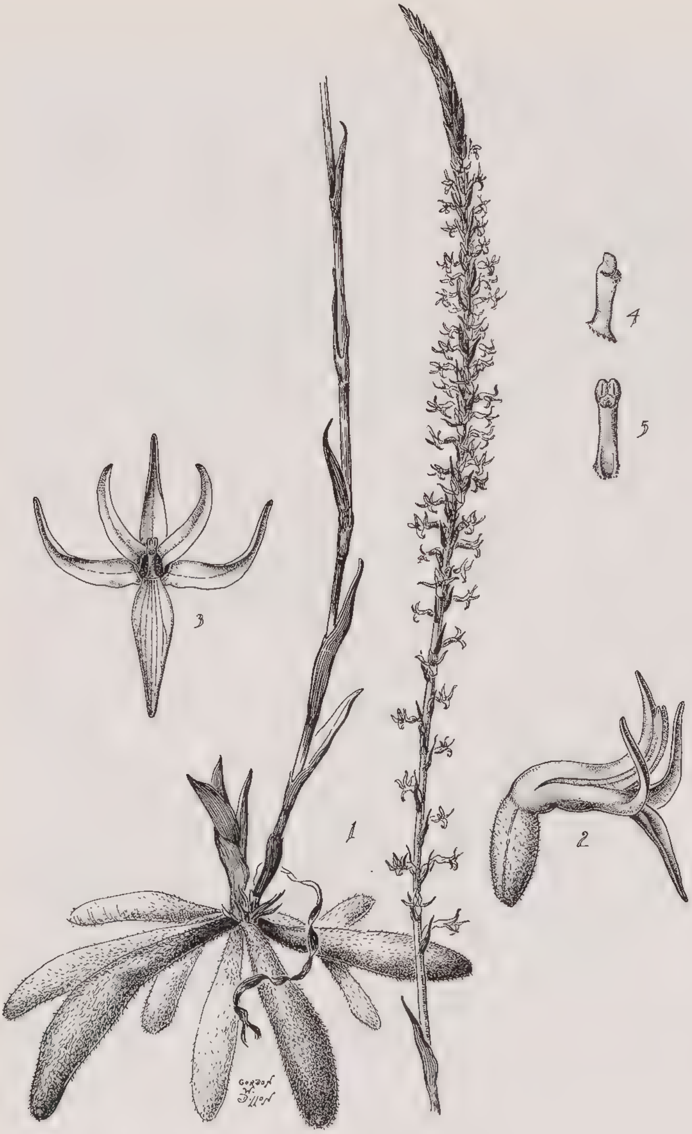


FIGURE 21. *Spiranthes polyantha* Rchb. f. 1, plant. 2, flower side view. 3, flower expanded. 4 and 5, column. Drawn by G. W. Dillon.

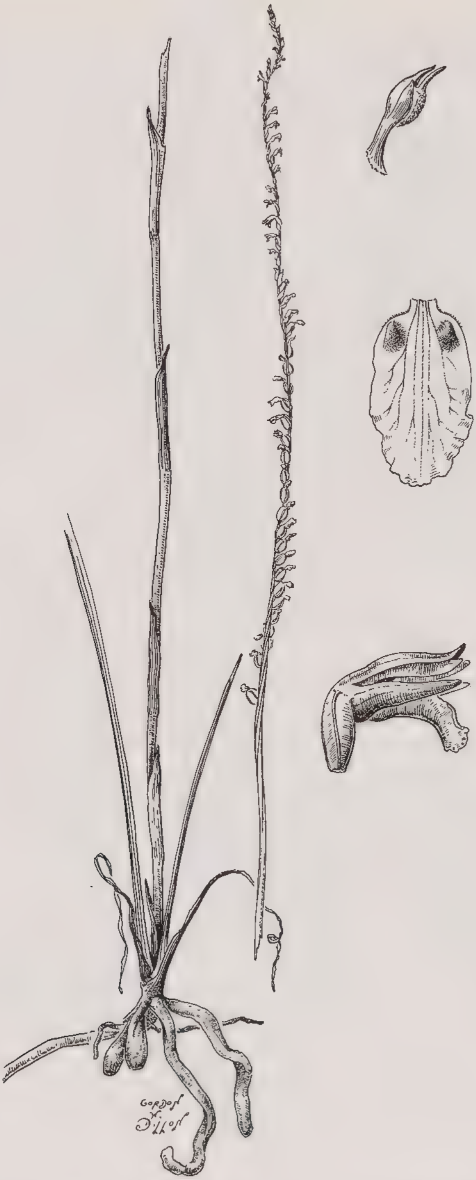


FIGURE 22. *Spiranthes torta* (Thunb.) Garay & Sweet.
Drawn by G. W. Dillon.

monly withering at flowering time, up to 30 cm. long, usually shorter. Peduncle erect loosely many-sheathed. Spike densely many-flowered, spirally twisted with secund flowers. Rachis occasionally obscurely puberulose. Bracts ovate to ovate-elliptic, abruptly acuminate, as long as or slightly surpassing the ovaries, up to 6 mm. long. Flowers white or greenish white. Sepals connivent, externally towards base somewhat puberulent. Dorsal sepal linear-oblong, obtuse, up to 6 mm. long. Lateral sepals narrowly triangular to linear-oblong, obtuse, somewhat oblique, up to 6 mm. long. Petals connivent with dorsal sepal, linear to linear-oblanceolate, obtuse, somewhat shorter than the dorsal sepal. Lip shortly subunguiculate, ovate to ovate-elliptic with rounded apex, occasionally obscurely constricted at apical third, then obscurely lobulate in outline, margin crenulate and strongly crispate, disc at base distinctly bicallose, as long as lateral sepals. Column short, slender, up to 3 mm. long. Ovary cylindric, as long as or shorter than subtending bracts.

Flowers from February to May.

General Distribution: Southern U.S., Bermuda, Bahamas, Greater Antilles, Trinidad, Central America.

Distribution in Lesser Antilles: Antigua!, Guadeloupe!, Martinique!, Dominica!, St. Lucia!, Grenada.

ELTROPLECTRIS Rafinesque-Schmaltz

Eltroplectris Raf., Fl. Tellur. 2: 51, 1837.

Sepals unequal in size, somewhat spreading. Dorsal sepal with the petals forms a distinct hood. Lateral sepals longer than the dorsal sepal, decurrent on the long free column-foot. Petals obliquely decurrent on the base of the column. Lip with a distinct claw, arcuately recurved, shorter than the sepals. Column rather short, erect, basally extended into a long slender foot, dorsally partially adnate to the ovary, apical half free forming a spur-like free mentum. Stigmata 2, approximate, but not connivent. Rostellum rigid, subulate, well developed. Anther persistent. Pollinia powdery-granular, clavate. Ovary sessile, or with a short pedicel, cylindric.

Terrestrial erect herbs with fleshy villose fasciculate roots. Leaves one to several, basal, often petiolate, occasionally withering during anthesis. Stem slender, erect, covered with imbricating sheaths. Inflorescence racemose, few- to several-flowered. Flowers variable.

Type: *Neottia calcarata* Sw. [Raf., Fl. Tellur. 2: 51, 1837]

Approximately 10 species in tropical America and West Indies.

Eltroplectris calcarata (Sw.) Garay & Sweet in Journ. Arnold Arb. 53: 390, 1972. — **Fig. 23.**

Basionym: *Neottia calcarata* Sw., Fl. Ind. Occ. 3: 1413, t. 28, 1804.

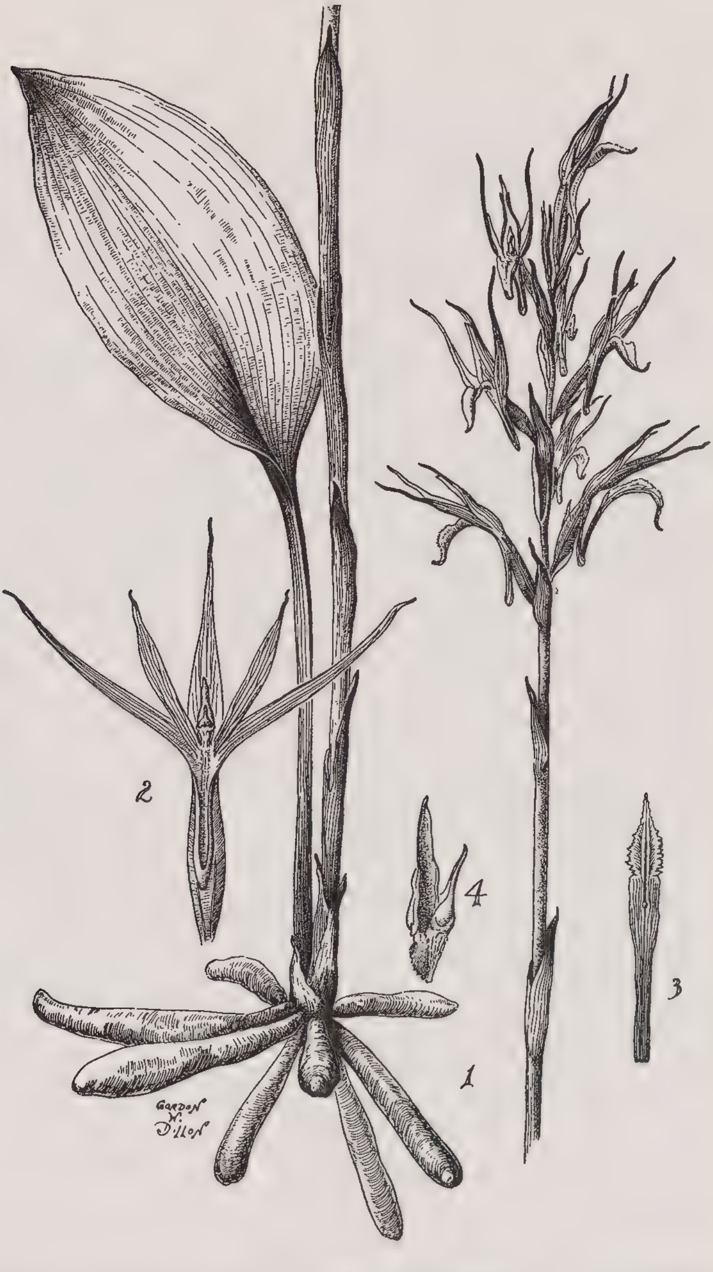


FIGURE 23. *Eltroplectris calcarata* (Sw.) Garay & Sweet. 1, plant. 2, flower expanded. 3, lip. 4, column. Drawn by G. W. Dillon.

Type: Dominican Republic, without proper locality. Coll. Swartz s.n. (s).

Syn.: *Pelexia setacea* Lindl., Gen. and Sp. Orch. Pl. 482, 1840; Cogn. in Urb., Symb. Antill. 6. 327, 1909.
Centrogenium setaceum (Lindl.) Schltr. in Beih. Bot. Centralbl. 37, pt. 2: 453, 1920; Schultes in Amer. Orch. Soc. Bull. 25: 387, 1956.
Type: Brazil, Rio Dose. Coll. Prince Maximilian Wiedens s.n.! (M, W).

Terrestrial, up to 50 cm. tall. Roots fasciculate, fleshy, villose. Leaves 1–3, basal; petioles elongate, slender, up to 15 cm. long; blade elliptic to ovate-elliptic, somewhat oblique, acute, up to 15 cm. long and 5.5 cm. wide. Scape usually glabrous below, more or less pubescent above including the rachis, rarely glabrous, throughout, with scattered sheaths, much surpassing the leaves. Spike loosely few-flowered. Bracts lanceolate, acuminate, as long as or slightly surpassing the ovaries, up to 3 cm. long. Flowers conspicuous, greenish white with pure white lip. Sepals spreading, linear-lanceolate, long acuminate, often setaceous, up to 3.5 cm. long. Lateral sepals decurrent on partially adnate column-foot. Petals linear-lanceolate, long acuminate, connivent with dorsal sepal to form a hood over the column, shorter than dorsal sepal. Lip arcuate, with a long claw, obscurely 3-lobed above the middle; lateral lobes obtuse, angular; midlobe lanceolate, with margins either erose-denticulate or distinctly fimbriate, very rarely obscurely denticulate or almost entire, up to 3.5 cm. long. Column short, with a long decurrent foot, basal half obliquely adnate to the ovary, apical half free, upcurved. Ovary cylindric, sessile, up to 2.5 cm. long.

Flowers from January to June.

General Distribution: Florida, Bahamas, Greater Antilles, South America (Brazil, Colombia).

Distribution in Lesser Antilles: Grenada!.

ERYTHRODES Blume

Erythrodes Bl., Bijdr. pt. 6: t. 1, f. 72, 1825.

Sepals free, concave. Petals partially connivent with dorsal sepal to form a hood. Lip lowermost, 3-lobed, rarely entire, basally produced into a distinct spur or spur-like sac. Column short, cylindric. Anther dorsal, parallel with column. Pollinia 2, pulverulent. Rostellum well-developed, bifid.

Terrestrial herbs with decumbent rhizomes rooted at nodes. Roots simple, fleshy. Leaves fleshy, few to several, with distinct petioles which are dilated into an infundibuliform sheath. Inflorescence simple, usually with a distinct peduncle, spicate or racemose above. Flowers commonly small, rather fleshy.

Type: *Erythrodes latifolia* Bl. [Bl., Bijdr. pt. 8: 411, 1825]

Genus of some 100 species native to the tropics and subtropics of America, Asia, Malaysia and Oceanic Islands.

KEY TO SPECIES

1. Inflorescence commonly subsessile or with a short peduncle; apical part of lip distinctly 3-lobed with a triangular terminal lobe .... *E. querceticola*
1a. Inflorescence with an elongate peduncle, much surpassing the leaves; apical part of lip never 3-lobed 2
2. Flowers large, 6–8 mm. long; lip as long as the sepals; spur ovoid-saccate .... *E. plantaginea*
2a. Flowers small, 3–4 mm. long; lip longer than the sepals; spur cylindric .... *E. hirtella*

Erythrodes hirtella (Sw.) Fawc. & Rendle, Fl. Jam. 1: 29, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 95, 1939; Hodge in Lloydia 17: 190, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956.

Basionym: *Satyrium hirtellum* Sw., Nov. Gen. & Sp. Pl., Prodr. 118, 1788.
Syn.: *Physurus hirtellus* (Sw.) Lindl., Gen. and Sp. Orch. Pl. 501, 1840; Rolfe in Kew Bull. 278, 1893; Duss in Ann. Inst. Col. Marseille 3: 606, 1897; Boldingh, Fl. St. Eustat., Saba and St. Martin 41, 1909; Cogn. in Urb., Symb. Antill. 6: 347, 1909.
Type: Jamaica, without proper locality. Coll. Swartz s.n.! (BM).

Satyrium plantagineum L., Pl. Jam. Pugillus 25, Dec. 8, 1759, not L., June 1759.
Satyrium latifolium L., Fl. Jam. 20, Jan. 2, 1760, not *Erythrodes latifolia* Bl.
Type: Jamaica. Coll. P. Brown s.n.! (LINN).

Terrestrial, up to 45 cm. tall. Rhizome ascending, rooted at nodes. Roots fleshy, pubescent or villose. Stem leafy. Leaves quite variable, narrowly elliptic to oblong-elliptic, oblong-ovate or rarely broadly ovate, acute; basally tapering into a distinct petiole, expanding into a vaginate base enclosing the stem, including the petiole up to 12 cm. long and 3 cm. wide, commonly much smaller. Peduncle erect, rather slender, remotely several-sheathed. Raceme cylindric, subdensely many-flowered. Flowers rather small, greenish outside and white inside. Bracts lanceolate, acuminate, somewhat longer than the ovaries. Sepals externally, especially toward base, sparsely hirsute. Dorsal sepal concave, ovate, acute or subobtuse, up to 3.5 mm. long. Lateral sepals obliquely oblong-lanceolate, acute, up to 3.5 mm. long, narrower than dorsal sepal. Petals linear-lanceolate, obtuse, up to 3 mm. long. Lip conduplicate, oblong, basally produced in a distinct linear, cylindric spur, much shorter than the ovary, apically suddenly constricted and then expanded into a transverse semilunate lobe, somewhat papillose, whole lip up to 3.5 mm. long. Pedicellate ovary cylindric, sparsely pubescent, up to 8 mm. long.

Flowers from January to July.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

OBSERVATION: It should be noted that the earliest name for these plants is *Satyrium latifolium* L., a name which has been completely overlooked. Unfortunately, the specific name has already been preempted in the genus.

Erythrodes plantaginea (L.) Fawc. & Rendle, Fl. Jam. 1: 28, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 91, 1939; Hodge in Lloydia 17: 190, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 390, 1956. — **Fig. 24.**

Basionym: *Satyrium plantagineum* L., Syst. ed. 10, 2: 1244, 1759.
Syn.: *Physurus plantagineus* (L.) Lindl., Gen. and Sp. Orch. Pl. 503, 1840; Rolfe in Kew Bull. 278, 1893; Duss in Ann. Inst. Col. Marseille 3: 605, 1897; Cogn. in Urb., Symb. Antill. 6: 346, 1909; Boldingh, Fl. St. Eustat., Saba and St. Martin 41, 1909.
Type: Jamaica: Mt. Diablo. Coll. Sloane s.n.! (BM).

Pelexia bursaria Lindl. in Ann. Nat. Hist. 5: 116, 1840.
Type: Dominica, without proper locality. Coll. Henslow s.n.! (K–L).

Physurus elatior Rchb. f. in Bonpl. 3: 214, 1855.
Type: Guadeloupe, without proper locality. Coll. Funck & Schlim no. 77! (G).

Terrestrial, up to 50 cm. tall. Rhizome ascending, rooted at nodes. Roots fleshy, villose. Stem leafy. Leaves several, obliquely ovate-elliptic, acute or subacuminate, basally more or less suddenly tapering into a distinct petiole, terminating in an inflated sheath enclosing stem, blade up to 12 cm. long and 4.5 cm. wide. Peduncle erect, more or less stout, remotely several sheathed. Inflorescence loosely many-flowered. Raceme cylindric, up to 15 cm. long. Bracts ovate to ovate-lanceolate, acute to subacuminate, shorter than the pedicellate ovary. Flowers white to greenish white, spreading, almost glabrous. Sepals narrowly ovate-oblong, obtuse, up to 8 mm. long. Petals narrowly oblong-spathulate, obtuse, somewhat shorter than the sepals. Lip conduplicate, basally extended in an ovoid pendulous spur, apically suddenly constricted and provided with a triangular-reniform lobe, whole lip up to 7 mm. long. Ovary shortly pedicellate, cylindric, up to 1 cm. long.

Flowers from October to May.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad and Tobago.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Eustatius, St. Kitts, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

Erythrodes querceticola (Lindl.) Ames, Orch. 5: 29, 1915, *in nota*; Stehlé Fl. Descr. Antill. Fr. 1: 96, 1939. — **Fig. 25.**

Basionym: *Physurus querceticola* Lindl., Gen. and Sp. Orch. Pl. 505, 1840.
Type: U.S.A.: Louisiana, New Orleans. Coll. Ingalls no. 1834! (K–L).

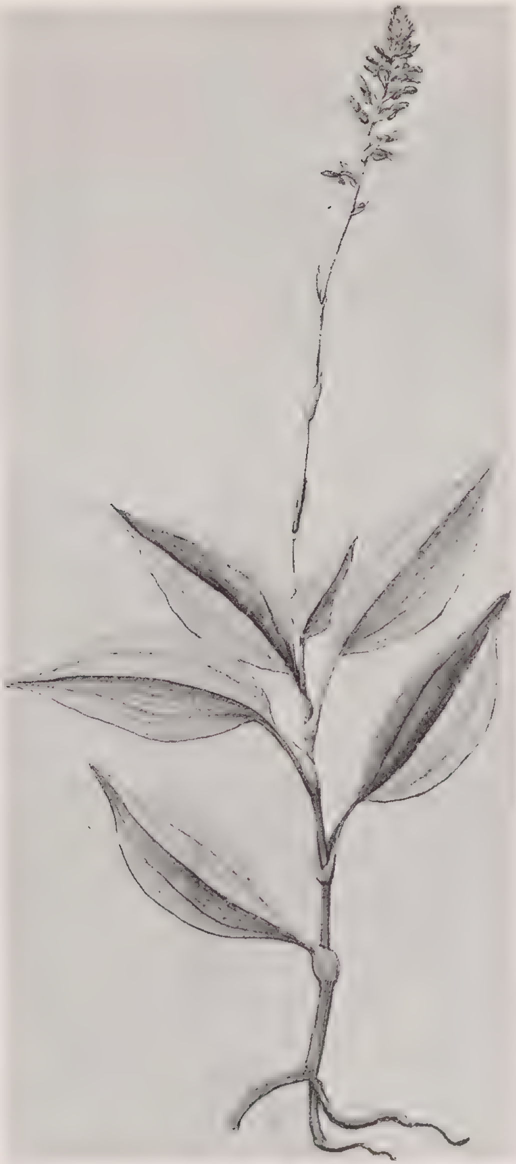


FIGURE 24. *Erythrodes plantaginea* (L.) Fawc. & Rendl. Drawn from the type specimen for Sloane by E. Kikius.

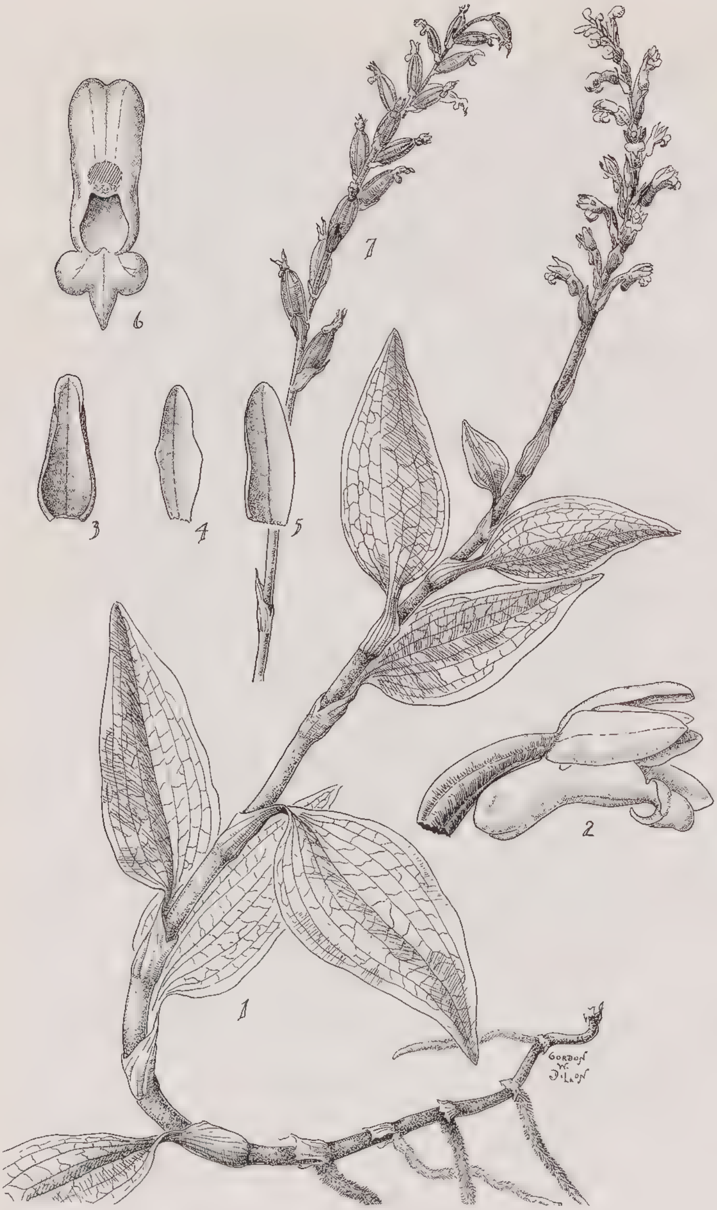


FIGURE 25. *Erythrodes querceticola* (Lindl.) Ames. 1, plant. 2, flower. 3, dorsal sepal. 4, petal. 5, lateral sepal. 6, lip with spur. 7, fruiting inflorescence. Drawn by G. W. Dillon.

Syn.: *Physurus Sagreanus* A. Rich. in Sagra, Fl. Cub. Faner. 11: 253, 1850; Cogn. in Urb., Symb. Antill. 6: 347, 1909.

Erythrodes Sagreana (A. Rich.) Ames, Orch. 5: 29, 1915; Steblé, Fl. Descr. Antill. Fr. 1: 95, 1939.

Type: Cuba, without proper locality. Coll. Sagra s.n.! (P, W).

Terrestrial, quite variable in size and appearance, either slender or stout, up to 40 cm. tall. Rhizome ascending, rooted at nodes. Roots fleshy, villose. Stem leafy. Leaves vary from narrowly lanceolate to ovate-lanceolate to ovate, acute to subacuminate, basally rounded and suddenly constricted into a distinct short petiole terminating in an inflated sheath surrounding the stem, up to 7 cm. long and 2 cm. wide. Peduncle short, often subsessile, remotely few-sheathed. Inflorescence racemose, laxly to subdensely many-flowered. Bracts broadly ovate to ovate-lanceolate, acute or acuminate, up to 7 mm. long. Flowers greenish white, subsessile, small, glabrous. Dorsal sepal concave, ovate to ovate-lanceolate, acute or obtuse, up to 4 mm. long. Lateral sepals obliquely ovate-lanceolate, rarely oblong-lanceolate, obtuse or subacute, up to 4.5 mm. long. Petals linear-lanceolate to subrhombic, obtuse, up to 4.5 mm. long. Lip strongly concave to navicular, basally produced in a didymous saccate spur, apically constricted at base of the more or less 3-lobed and recurved triangular terminal lobe, length up to 7 mm. long including the spur. Ovary cylindric with short pedicel, glabrous, up to 8 mm. long.

Flowers from November to March.

GENERAL DISTRIBUTION: Central America, Greater Antilles, Florida, northern South America (Venezuela and Peru).

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

CORYMBORKIS Du Petit-Thouars

Corymborkis Thou. in Nouv. Bull. Sci. Soc. Philom. Paris ser. 2, 1: 318, 1809.

Sepals and petals more or less spreading, linear-spathulate, basally connivent or connate to form a very shallow cup or tube. Lip erect, linear-canaliculate with recurved apex. Column long, slender, clavate. Clinandrium short. Anther dorsal. Rostellum prominent, bifid. Pollinia granulose, linear, on a terete stipe and affixed to rostellum through a peltate gland. Stigma transverse.

Terrestrials, up to several meters tall. Stem erect, leafy, occasionally branched with fasciculate fibrous roots. Leaves large, plicate. Inflorescence axillary, in a short raceme or panicle. Flowers resupinate, occasionally showy.

TYPE: *Corymborkis corymbosa* Thou. [Thou., Hist. Pl. Orch. t. 37, 1822].

Approximately 8 species. Pantropical in distribution.

Corymborkis flava (Sw.) O. Ktze., Rev. Gen. Pl. 2: 658, 1891; Cogn. in Urb., Symb. Antill. 6: 365, 1909 [as Corymbis]; Stehlé, Fl. Descr. Antill. Fr. 1: 107, 1939; Correll in Bot. Mus. Leafl, Harv. Univ. 8: 122, 1940. — **Fig. 26.**

Basionym: *Serapias flava* Sw., Nov. Gen. & Sp. Pl., Prodr. 119, 1788.
Type: Jamaica, mountains of Clarendon. Coll. Swartz s.n.! (BM, UPS).

Terrestrial, erect, shrub-like, up to 2 meters tall. Roots fasciculate, wiry. Stem rather slender, erect, leafy throughout. Leaves thin in texture, plicate, lanceolate to oblong-lanceolate, acuminate basally tapering into a sheathing base enveloping the stem; blade up to 30 cm. long and 5 cm. wide. Inflorescence axillary, paniculate, much shorter than the leaves. Bracts broadly ovate to ovate-lanceolate, acute or obtuse, up to 5 mm. long. Flowers yellow. Dorsal sepal linear-oblong, obtuse, up to 2.5 cm. long, lateral sepals obliquely linear-lanceolate, acute to subacuminate, somewhat shorter than the dorsal sepal. Petals obovate to oblanceolate, acute, up to 2 cm. long. Lip ovate-lanceolate, more or less cymbiform, subpandurately constricted at apical third, acute or obtuse, margin obscurely erose-denticulate to entire, disc glabrous, whole lip up to 2 cm. long. Ovary cylindric, subsessile, up to 12 mm. long.

Flowers from November to March.

GENERAL DISTRIBUTION: Greater Antilles, Central America and tropical South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe. Coll. Duss no. 3813! (AMES).

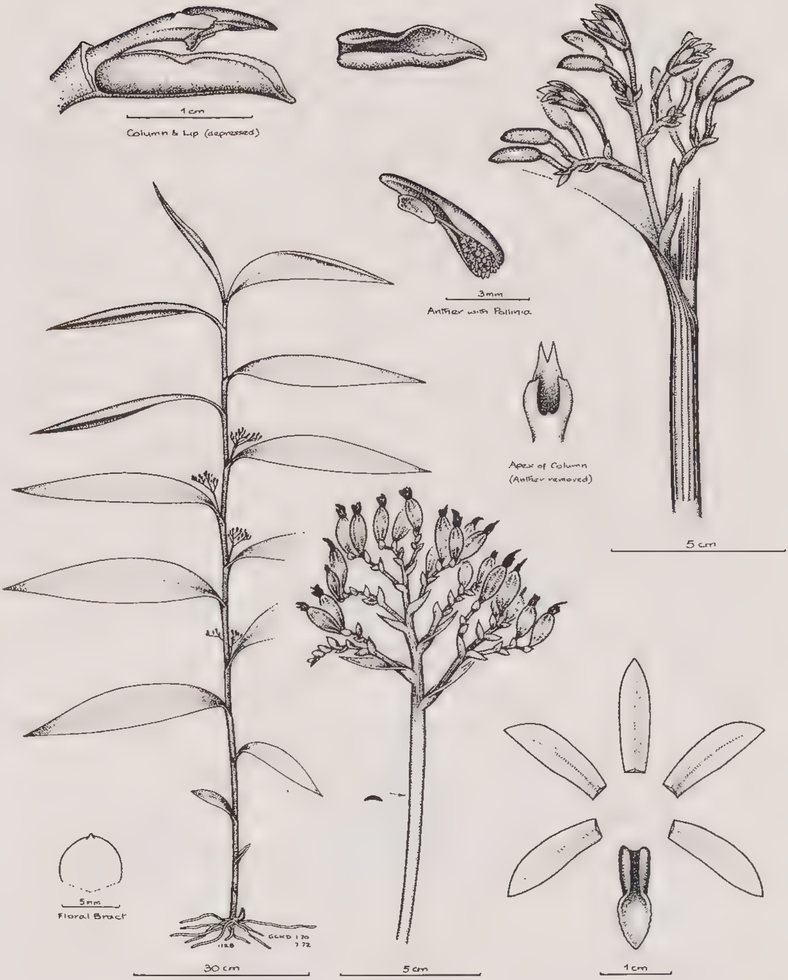


FIGURE 26. *Corymborkis flava* (Sw.) O. Ktze.
Drawn by G. C. K. Dunsterville.

EPIDENDROIDEAE Lindl. ex Pfeiffer, Nom. Bot. 2, pt. 1: 516, 1874.
Flowers zygomorphic; perianths dissimilar; column well developed, often extensively modified; anther only one, incumbent, rarely dorsally reclined, hence suberect, dorsally attached to the column through a connective, commonly deciduous, with parallel thecae; mature pollen always in tetrads, firmly aggregate in waxy or cartilaginous pollinia; stigmata 2, more or less confluent, the third one always modified into a distinct rostellum.

Type of the subfamily: Genus *Epidendrum* L.

STELIS Swartz

Stelis Sw. in Schrader, Journ. Bot. 2, pt. 4: 239, 1800.
Sepals similar, spreading, stellate, more or less connate basally. Petals much shorter than sepals, commonly wider than long, very fleshy with thickened margins. Lip very small, articulate with column, entire or lobed. Column very short, footless, very fleshy, with distinct arms enclosing the separate stigmata. Clinandrium prominent. Stigmata 2, distinct, rarely touching one another under the rostellum. Rostellum well developed. Anther terminal, incumbent. Pollinia 2, without a stipe.

Epiphytic or lithophytic plants. Stem rhizomatous or caespitose, rarely proliferous, 1-leaved. Leaves fleshy, often petiolate. Inflorescence elongate, racemose, never 1-flowered. Bracts allsided, rarely distichous or imbricate. Flowers commonly small to minute, occasionally secund in the raceme.

Lectotype: *Humboldtia purpurea* Ruíz & Pav. [Garay & Sweet in Journn. Arnold Arb. 53: 528, 1972].

Genus of some 260 species distributed throughout tropical America.

Key to Species

1. Inflorescences sessile, densely-flowered; sepals ovate; lip distinctly 3-lobed . . . . *S. perpusilliflora*
1a. Inflorescences pedunculate, loosely-flowered; sepals broadly ovate-triangular to subrotund; lip entire 2
2. Plants small, up to 3 cm. tall; sepals suborbicular without thickened margins, acuminate; petals subquadrate . . . . *S. pygmaea*
2a. Plants larger, up to 15 cm. tall; sepals broadly ovate-triangular with thickened margins, obtuse; petals transversely oval to flabellate 3
3. Inflorescences half as long as the subtending leaf; petals flabellate without scabridous margins; lip truncate in front with a small apicule in middle . . . . *S. Dussii*
3a. Inflorescences as long as or longer than the subtending leaf; petals transversally oval with scabridous margins; lip rounded in front without a small apicule in middle . . . . *S. scabrida*

Stelis Dussii Cogn. in Urb., Symb. Antill. 6: 389, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 184, 1939. — **Fig. 27.**

Type: Guadeloupe, along Rivière Noire. Coll. Duss. no. 3986! (NY).

Epiphytic, caespitose plants, up to 15 cm. tall. Secondary stems approximate, erect, with a single sheath in middle, up to 5.5 cm. long. Leaves coriaceous, lanceolate or lanceolate-elliptic, acute, basally tapering into an up to 3 cm.-long petiole, including petiole up to 8 cm. long and 1.5 cm. wide. Inflorescences from small scarious sheaths, 1–3, erect, racemose, fractiflex, loosely few-flowered, shorter than the leaves, up to 6 cm. long. Flowers small, greenish to purplish green. Sepals similar, membranaceous, broadly ovate-triangular, marginate, acute or obtuse, up to 3.5 mm. long and 4 mm. wide. Petals flabellate, cucullate, with thickened margins, up to 1 mm. long and 1.5 mm. wide. Lip very fleshy, subquadrate in outline with a short, blunt apicule in front; disc cushion-like; whole lip approximately 1 mm. long and wide. Column short with divaricate arms. Pedicellate ovary up to 3 mm. long.

Flowers during October.

General Distribution: Endemic in Lesser Antilles.

Distribution in Lesser Antilles: Guadeloupe!.

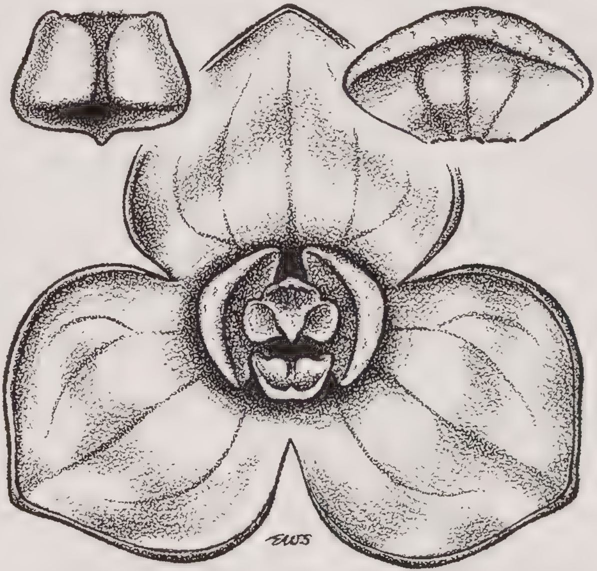


Figure 27. *Stelis Dussii* Cogn. Drawn by E. W. Smith.

Stelis perpusilliflora Cogn. in Urb., Symb. Antill. 6: 386, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 181, 1939; Hodge in Lloydia 17: 209, 1954. — **Fig. 28.**

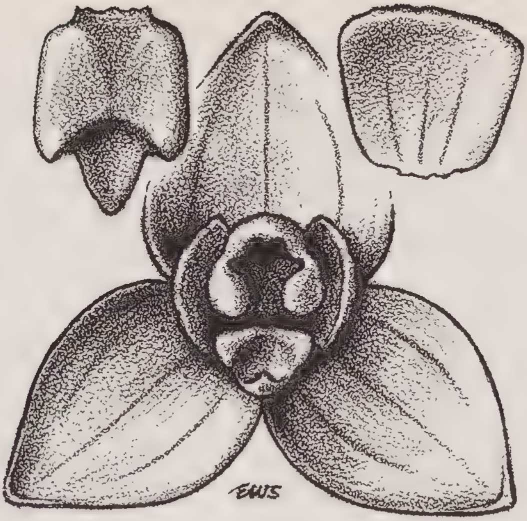


Figure 28. *Stelis perpusilliflora* Cogn. Drawn by E. W. Smith.

Type: Guadeloupe, near Matouba. Coll. Duss no. 3756! (AMES, NY).

Epiphytic, caespitose plants, up to 20 cm. tall. Secondary stems erect, approximate with a distinct median sheath, up to 11 cm. long. Leaves coriaceous, oblong-ligulate to oblong-obovate, acute or obtuse, basally tapering into an up to 2 cm.-long petiole, including petiole up to 11 cm. long and 2 cm. wide. Inflorescences 1–4, erect, sessile, densely many-flowered, up to 6 cm. long. Flowers small, greenish. Sepals similar, ovate, acute or obtuse, up to 2 mm. long and 1 mm. wide. Petals subquadrate, truncate, without prominently thickened apex, up to 0.5 mm. long and wide. Lip very fleshy, 3-lobed; lateral lobes dentiform, continuation of cushion-like thickened disc; midlobe much thinner, triangular, acute or obtuse, up to 0.7 mm. long and 0.5 mm. wide. Column short, fleshy, with prominent obtuse arms. Pedicellate ovary up to 3 mm. long.

Flowers more or less throughout the year.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!.

Stelis pygmaea Cogn., in Urb., Symb. Antill. 6: 390, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 184, 1939. — **Fig. 29.**

Type: Guadeloupe, Bains Jaunes. Coll. Duss no. 4182! (AMES, NY).

Small epiphytes, up to 3 cm. tall. Secondary stems approximate, caespitose, entirely covered by 3 imbricating sheaths, up to 1 cm. tall. Leaves coriaceous, linear-oblanceolate, acute or obtuse, tapering toward base, up to 2.5 cm. long and 5 mm. wide. Inflorescences 1–4, capillary racemose,

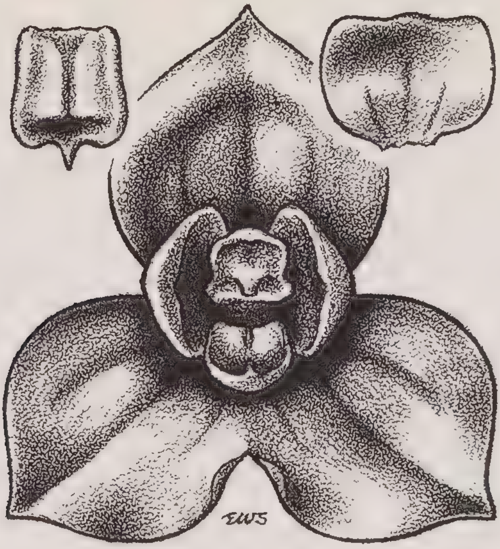


FIGURE 29. *Stelis pygmaea* Cogn. Drawn by E. W. Smith.

laxly few-flowered, up to 2.5 cm. long. Flowers greenish white to greenish yellow. Sepals rather fleshy, similar, suborbicular, abruptly acuminate, 1.2 mm. long and wide. Petals rather thin, membranaceous, subquadrate, apex truncate without distinctly thickened margins. Lip fleshy, quadrate in outline, truncate in front, with a distinct triangular acuminate apicule in middle; disc cushion-like, longitudinally sulcate in middle; whole lip up to 0.5 mm. long and wide. Column short, fleshy, with shortened arms. Pedicellate ovary 3 mm. long.

Flowers throughout the year.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

Stelis scabrida Lindl. in Ann. & Mag. Nat. Hist. 5: 115, 1840; Rolfe in Kew Bull. 277, 1893; Cogn. in Urb., Symb. Antill. 6: 388, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 183, 1939; Hodge in Llyodia 17: 211, 1954. — **Fig. 30.**

Type: Dominica, without proper locality. Coll. Henslow s.n.! (K-L).

Syn.: *Epidendrum ophioglossoides* Jacq., Sel. Stirp. Amer. Hist. 225, t. 133, f. 2, 1763, not Jacq. 1760.

Type: Martinique, without proper locality. Coll. Jacquin s.n.! (BM).

Stelis Toepfferiana Rchb. f. in Flora 69: 556, 1886; Cogn. in Urb., Symb. Antill. 6: 390, 1909; Hodge in Lloydia 17: 211, 1954.

Type: Dominica, without proper locality. Toepffer no. 996! (W).

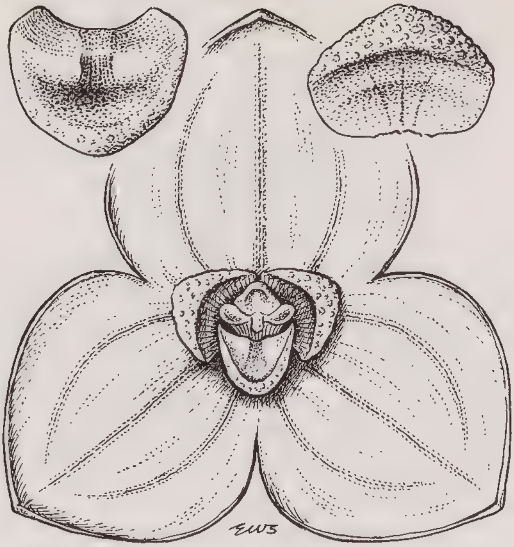


FIGURE 30. *Stelis scabrida* Lindl. Drawn by E. W. Smith.

Epiphytic, caespitose plants up to 15 cm. tall. Secondary stem erect, rather slender, completely enclosed by 2–3 imbricating sheaths, up to 3 cm. tall. Leaves oblanceolate to obovate-oblanceolate, acute or obtuse, basally tapering into an up to 1.5 cm.-long petiole, including the petiole up to 10 cm. long and 1.2 cm. wide. Inflorescences 1–2, produced in succession, erect or arcuate, laxly many-flowered, up to 12 cm. long. Rachis more or less flexuous. Flowers yellowish green. Sepals similar, broadly elliptic to suborbicular, marginate, acute or obtuse, up to 2.5 mm. long and wide. Petals very fleshy, transversely oval, with a distinctly thickened scabridous margin, up to 0.5 mm. long and 1 mm. wide. Lip very fleshy, similar to petals, round in front with more or less scabridous margins; disc with a transverse fleshy ridge, as long as petals. Column short with diverging arms, more or less sparsely scabridous. Pedicellate ovary up to 2 mm. long.

Flowers throughout the year.

GENERAL DISTRIBUTION: Endemic in Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Nevis!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

OBSERVATION: Specimens from the Lesser Antilles reported in the literature as *Stelis ophioglossoides* are all referable to this species. *Stelis ophioglossoides* auct. not Sw. for which the correct name is *S. trigoniflorum* (Sw.) Garay & Sweet is limited in distribution to the Greater Antilles.

PLEUROTHALLIS R. Brown

Pleurothallis R. Br. in Ait., Hort. Kew., ed. 2, 5: 211, 1813.

Sepals free, or lateral sepals more or less connate, ringent or rarely spreading. Petals dissimilar, shorter than sepals, always longer than wide. Lip articulate with column-foot, commonly fleshy, entire or lobed; disc variously ornate with calli or keels, often asperulous or papillose. Column commonly elongate, cylindric, with a distinct foot, rarely short. Anther operculate, incumbent, Pollinia normally 2, waxy, without a stipe. Rostellum well developed. Stigmata 2, confluent.

Epiphytic or lithophytic, rhizomatous or caespitose herbs. Primary stem or rhizome often well-developed, repent or ascending. Secondary stems erect or ascending, approximate or remote, well-developed to much reduced, jointed, with scarious sheaths. Leaf single, terminal, fleshy to coriaceous, conduplicate or occasionally terete or equitant. Inflorescence terminal, fasciculate or racemose, often distinctly pedunculate. Flowers usually small, rarely showy, one to many, allsided or secund, variously colored.

TYPE: *Epidendrum ruscifolium* Jacq. [R. Br. in Ait., Hort. Kew., ed. 2, 5: 211, 1813].

A neotropical genus comprising approximately 1,000 species.

KEY TO SPECIES

1. Plants with distinct well-developed repent or spreading rhizome 2
1a. Plants caespitose 4
2. Secondary stem very short, completely enclosed by imbricating sheaths, up to 10 mm. long 3
2a. Secondary stem well-developed with a single tubular sheath in middle, up to 50 mm. long ...... *P. Wilsoni*
3. Leaves with purple spots, elliptic; flowers sessile, sepals pilose ...... *P. testaefolia*
3a. Leaves without purple spots, linear; flowers on distinct peduncle; sepals glabrous ...... *P. Dussii*
4. Secondary stems almost nil, up to 3 mm. long 5
4a. Secondary stems well-developed 6
5. Sepals more or less ciliolate, caudate; petals fimbriate ...... *P. aristata*
5a. Sepals glabrous, ecaudate; petals entire ...... *P. Mazei*
6. Inflorescence fasciculate; sepals elongate, 9–10 mm. long, spreading ...... *P. ruscifolia*
6a. Inflorescence racemose; sepals shorter, up to 6 mm. long, ringent 7
7. Secondary stems triquetrous; leaves decurrent on angular stem; sepals distinctly carinate dorsally ...... *P. ophioglossoides*
7a. Secondary stem round; leaves not decurrent on stem; sepals not carinate 8
8. Sheaths of secondary stem lepanthiform, i.e. with ciliolate-costate ridges and ciliolate thickened margins 9
8a. Sheaths of secondary stem tubular without costate ridges and thickened margins 10
9. Plants with superimposed stems; flowers yellowish petals entire ...... *P. foliata*

9a. Plants without superimposed stems; flowers purplish; petals erose-ciliate . . . . *P. memor*

10. Leaves broadly ovate-elliptic; flowers pubescent inside; petals spathulate; lip papillose-asperulose . . . . *P. Imraei*

10a. Leaves narrowly lanceolate to obovate-oblanceolate; flowers glabrous inside; petals and lip otherwise 11

11. Leaf sessile; petals as long as sepals; lip entire . . . . *P. pruinosa*

11a. Leaf petiolate; petals shorter than sepals; lip 3-lobed . . . . *P. domingensis*

Pleurothallis aristata Hook. in Ann. & Mag. Nat. Hist. ser. 1, 2: 329, 1839; Duss in Ann. Inst. Col. Marseille 3: 588, 1897; Cogn. in Urb., Symb. Antill. 6: 423, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 208, 1939; Hodge in Lloydia 17: 213, 1954.

Type: Guyana, near Demarara. Introduced and flowered by Parker s.n.! (K).

Syn.: *Pleurothallis Urbaniana* Rchb. f. in Ber. Deutsch. Bot. Gessellsch. 3: 279, 1885; Cogn. in Urb., Symb. Antill. 6: 411, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 198, 1939; Hodge in Lloydia 17: 211, 1954.

Type: Puerto Rico, near Maricao. Coll. Sintenis no. 503! (W).

Epiphytic, caespitose herbs, up to 8 cm. tall. Secondary stems approximate, very short, completely enclosed by 1 or 2 imbricating scarious sheaths, up to 3 mm. long. Leaves rather thin in texture, narrowly oblanceolate to elliptic-oblanceolate, acute or obtuse, tapering into a thin, up to 2 cm.-long petiole, including petiole up to 4 cm. long and 5 mm. wide. Inflorescence elongate, filiform. much surpassing the leaves, up to 8 cm. long. Rachis fractiflex, laxly few-flowered. Flowers white to dark purple, occasionally with purple stripes. Dorsal sepal ovate to ovate-elliptic, concave, long caudate-acuminate, with more or less ciliolate margins, rarely entirely glabrous, up to 12 mm. long. Lateral sepals similar to dorsal sepal, more or less connate to middle with somewhat ciliolate margins, as long as dorsal sepal. Petals lanceolate in outline, acuminate, irregularly fimbriate along margins, up to 4 mm. long. Lip 3-lobed; lateral lobes suborbicular, divaricate; midlobe elliptic, obtuse, whole upper surface asperulous; disc with 2 parallel keels; whole lip up to 4 mm. long. Column arcuate, with 3-lobed clinandrium. Pedicellate ovary up to 7 mm. long.

Flowers more or less throughout the year.

GENERAL DISTRIBUTION: Costa Rica, Panama, Greater Antilles, Guyana.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

Pleurothallis domingensis Cogn. in Urb., Symb. Antill. 6: 402, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 191, 1939.

Type: Dominican Republic, Valle Nuevo. Coll. Eggers no. 2176! (BR).

Epiphytic, caespitose herbs, up to 35 cm. tall. Secondary stems approximate, provided with a single sheath in middle, up to 20 cm. tall. Leaves coriaceous, obovate-oblanceolate, acute or obtuse, gradually tapering to a distinct up to 3 cm.-long petiole, including petiole up to 15 cm. long and 3 cm. wide. Inflorescences 1–3, produced in succession, floriferous, loosely many-flowered, shorter than the subtending leaf. Flowers greenish yellow. Dorsal sepal ovate-lanceolate, acute, up to 3.5 mm. long. Lateral sepals connate to middle, acute, up to 3.5 mm. long. Petals oblong-ligulate, acute or obtuse, up to 2 mm. long. Lip from cuneate base 3-lobed; lateral lobes semi-rotund; midlobe broadly triangular-ovate, approximate; whole lip up to 2 mm. long and 1.5 mm. wide. Pedicellate ovary up to 3 mm. long.

Flowers throughout the year.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe!.

Observation: This species has been confused in the West Indian literature with *Pleurothallis velaticaulis* Rchb. f. and *P. crassipes* Lindl., both originally from Venezuela. These latter two species are easily recognized by the elliptic shape of the leaves and by the inflorescences which are as long as or much surpassing the subtending leaves, as well as by the larger, up to 6 mm.-long sepals.

Pleurothallis Dussii Cogn. in Urb., Symb. Antill. 6: 413, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 201, 1939.

Type: Guadeloupe, between Bains Jaunes and Savane a Mulets. Coll. Duss no. 3339! (AMES, BR).

Epiphytic, rhizomatous herbs, up to 4 cm. tall. Primary stem or rhizome obliquely ascending, suberect, completely enclosed by scarious sheaths. Secondary stems more or less approximate, completely enclosed by tubular, scarious sheaths, up to 3 mm. long. Leaves fleshy, linear to linear-oblanceolate, mucronate, up to 25 mm. long. Peduncle erect, slender, 1-flowered, up to 3 cm. long. Flowers rather small, yellowish, glabrous. Dorsal sepal narrowly ovate-lanceolate, acute, up to 6.5 mm. long. Lateral sepals connate to a bifid apex, ovate in outline, acute, up to 6.5 mm. long. Petals linear to linear-lanceolate, acuminate, up to 4 mm. long. Lip sessile, entire, ovate-lanceolate, acute, disc asperulous in front; whole lip up to 3 mm. long. Column clavate. Pedicellate ovary up to 3 mm. long.

Flowers during July and August.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe!.

Pleurothallis foliata Griseb., Fl. Brit. Ind. Isl. 610, 1864; Cogn. in Urb., Symb. Antill. 6:431, 1909. — **Fig. 31.**

Type: Jamaica, without proper locality. Coll. Wilson no. 160! (K).

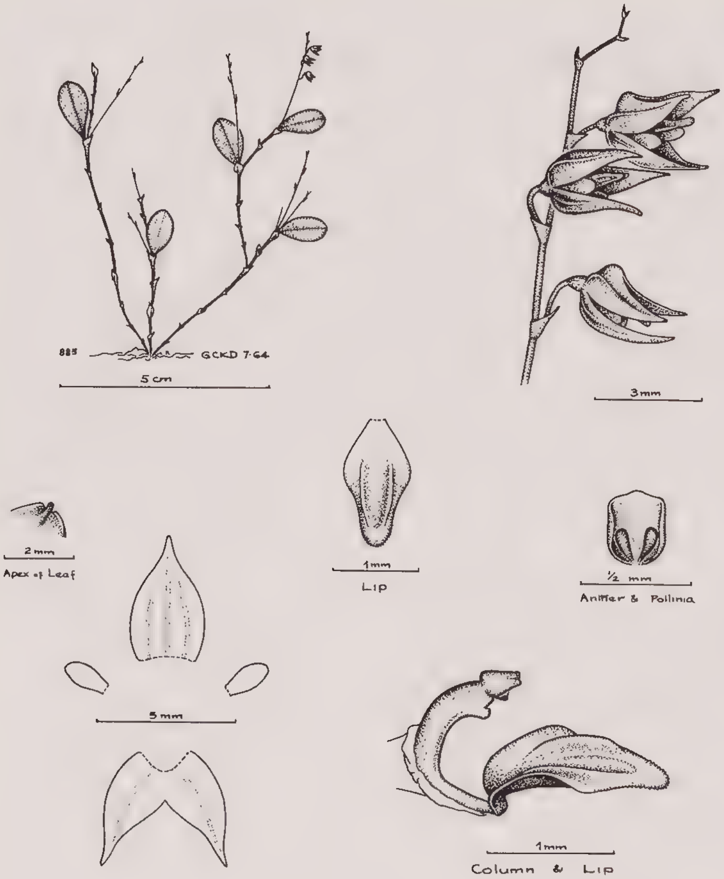


FIGURE 31. *Pleurothallis foliata* Griseb. Drawn by G. C. K. Dunsterville.

Syn.: *Pleurothallis Broadwayi* Ames, Orch. 2: 267, 1908; Cogn. in Urb., Symb. Antill. 6: 432, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 209, 1939; Schultes in Amer. Orch. Soc. Bull. 25: 391, 1956.
Type: Grenada, Annandale, St. George's. Coll. Broadway no. 1846! (AMES).

Pleurothallis guadalupensis Cogn. in Urb., Symb. Antill. 6: 432, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 209, 1939.
Type: Guadeloupe, near Bonbariman, Haut-Matouba. Coll. Duss no. 4192! (BR, AMES).

Epiphytic, caespitose herbs. Secondary stems slender, often superimposed, each superimposed segment up to 3 cm. long, entirely enclosed by costate, lepanthiform sheaths with ciliate margins. Leaves coriaceous, elliptic to obovate-elliptic, marginate, up to 1.2 cm. long and 7 mm. wide. Inflorescence filiform, racemose, much surpassing the subtending leaf, loosely few-flowered, up to 4 cm. long. Flowers yellowish, rather thin in texture. Dorsal sepal ovate-lanceolate, acuminate, cucullate, up to 6 mm. long and 2 mm. wide. Lateral sepals free, obliquely ovate-lanceolate, acute, up to 5.5 mm. long and 1.2 mm. wide. Petals oval to obovate, occasionally subspathulate, obtuse, up to 1.5 mm. long. Lip ovate to ovate-elliptic, rarely subtrilobate, obtuse or rounded at the papillose-thickened apex, disc commonly bicarinate; whole lip up to 2 mm. long. Column short, somewhat arcuate with indistinct auricles. Pedicellate ovary up to 3 mm. long.

Flowers from March through September.

GENERAL DISTRIBUTION: Central America, Venezuela, Colombia, Brazil, Trinidad, Tobago, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, Grenada!.

Pleurothallis Imraei Lindl., Folia Orch. Pleurothallis 9, no. 35, 1859; Cogn. in Urb., Symb. Antill. 6: 421, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 204, 1939; Hodge in Lloydia 17: 213, 1954. — **Fig. 32.**

Type: Dominica, without proper locality. Coll. Imray no. 272! (K–L).

Syn.: *Pleurothallis vaginata* Schltr. in Fedde Rep. Beih. 19: 917, 1923; Stehlé, Fl. Descr. Antill. Fr. 1: 187, 1939.
Type: Costa Rica, near San Pedro, San Ramon. Coll. Brenes no. 122! (AMES).

Epiphytic, caespitose herbs, up to 42 cm. tall. Secondary stems erect with a large single sheath in middle, up to 27 cm. tall. Leaves coriaceous, broadly ovate-elliptic, acute or subacuminate, basally rounded or contracted into an up to 2 cm.-long petiole, including petiole up to 15 cm. long and 9 cm. wide. Inflorescences 2 to several from a small laterally compressed spathe, racemose, loosely several-flowered, half as long as, or shorter than subtending leaf. Flowers brownish purple. Dorsal sepal fleshy, ovate-lanceolate, concave, inside pubescent towards apex, up to 6 mm. long. Lateral sepals similar to dorsal sepal, somewhat oblique. Petals fleshy, obovate-spathulate, obtuse, up to 3 mm. long. Lip distinctly un-

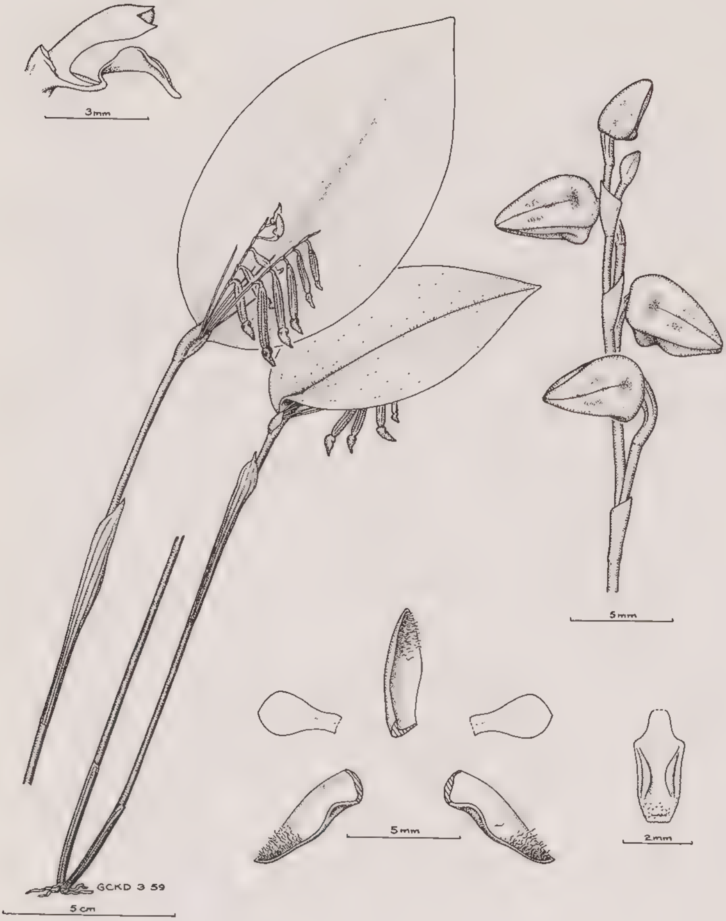


FIGURE 32. *Pleurothallis Imraei* Lindl. Drawn by G. C. K. Dunsterville.

guiculate, from a cuneate base pandurate, obtuse or subtruncate at apex; disc with a pair of parallel keels, whole surface toward the apex papillose-asperulose; whole lip up to 3.5 mm. long. Column arcuate, clavate with a 3-dentate clinandrium. Pedicellate ovary up to 2 mm. long.

Flowers from August to February.

General Distribution: Costa Rica, Panama, Greater Antilles, Venezuela, Colombia, Ecuador, Peru, Bolivia.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!.

Pleurothallis Mazei Urb. in Fedde Rep. 15: 104, 1917; Stehlé, Fl. Descr. Antill. Fr. 1: 197, 1939.

Basionym: *Pleurothallis elegantula* Cogn. in Urb., Symb. Antill. 6: 411, 1909, not Cogn., 1906.
Type: Guadeloupe, near Nez Cassé. Coll. Duss no. 4178! (AMES, BR).

Epiphytic, caespitose, minute plants up to 3 cm. tall. Secondary stems very short, enclosed by 1–2 scarious sheaths, up to 3 mm. long. Leaves small, fleshy, narrowly obovate-oblanceolate, acute or obtuse, tapering into an up to 2 mm.-long petiole, including the petiole up to 12 mm. long and 5 mm. wide. Inflorescence erect, slender, racemose, loosely 2–3 flowered. Flowers pale yellow. Dorsal sepal ovate, cucullate, obtuse, dorsally carinate, up to 3 mm. long. Lateral sepals connate to middle, lanceolate, acute, dorsally carinate, up to 2.5 mm. long. Petals entire, oblong-ligulate with a rounded apex, up to 1.5 mm. long. Lip shortly unguiculate, 3-lobed, cruciform; lateral lobes semicircular; midlobe oblong-ligulate, obtuse; whole lip up to 2 mm. long. Column slender, clavate. Pedicellate ovary up to 2 mm. long.

Flowers from October through December.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe!.

Pleurothallis memor Rchb. f. in Bonpl. 4: 330, 1856. — **Fig. 33.**

Type: Introduced in cultivation probably from Colombia and flowered by Forkel s.n.! Herb. Reichenbach no. 20792 (W).

Syn.: *Pleurothallis gnomonifera* Ames, Sched. Orch. 6: 61, 1923.
Type: Panama, Prov. Chiriqui, Cerro Norquita. Coll. Powell no. 311! (AMES).

Epiphytic, caespitose plants up to 13 cm. tall. Secondary stems erect, completely enclosed by ciliolate-costate lepanthiform sheaths with ciliolate margins, up to 8 cm. long. Leaves coriaceous, narrowly ovate-lanceolate, acute, subsessile, up to 5 cm. long and 1.5 cm. wide. Inflorescences several, appearing on lower surface of leaf, densely several-flowered, about half as long as subtending leaf. Flowers more or less secund in raceme, wine-red. Dorsal sepal oblong-elliptic, cucullate, ciliolate to pubescent,

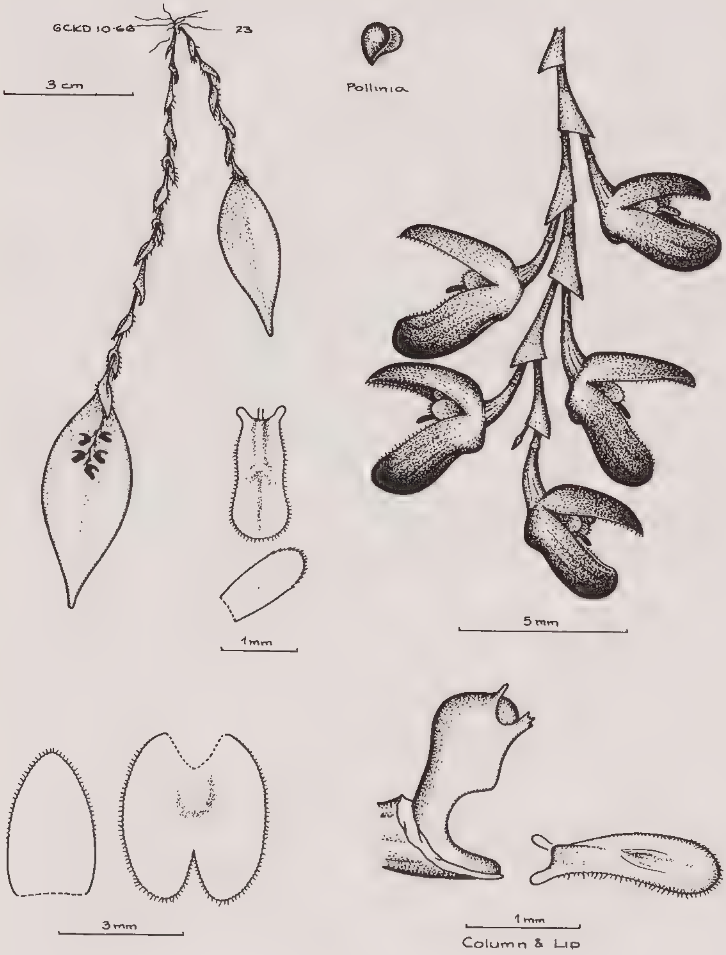


FIGURE 33. *Pleurothallis memor* Rchb. f. Drawn by G. C. K. Dunsterville.

especially toward apex, obtuse, up to 3.5 mm. long. Lateral sepals united half way, ovate-elliptic, obtuse or rounded at apex, ciliolate along margin and somewhat pubescent toward apex, up to 3.5 mm. long. Petals obovate to subquadrate in outline with ciliolate to erose-ciliolate margins, up to 2 mm. long. Lip entire, from a cordate base oblong-ligulate to slightly subpandurate, fleshy, rounded in front, ciliolate along margins; disc provided with a longitudinal fleshy keel with bifurcate apex, whole lip up to 2 mm. long. Column somewhat arcuate, winged with more or less ciliolate clinandrium. Pedicellate ovary up to 2 mm. long.

Flowers from October through December.

General Distribution: Costa Rica, Panama, Trinidad, Venezuela, Colombia.

Distribution in Lesser Antilles: Grenada!.

Observation: Specimens referable to this species have been listed by Schultes as *Pleurothallis orbicularis* (Lindl.) Lindl. in Amer. Orch. Soc. Bull. 25: 391, 1956.

Pleurothallis ophioglossoides (Jacq.) Garay & Sweet in Journ. Arnold Arb. 53: 391, 1972.

Basionym: *Epidendrum ophioglossoides* Jacq., Enum. Syst. Pl. 29, 1760, based on *Helleborine ophioglosso similis*, Plum. Cat. 9, 1703, and Icon. Burm. t. 176, f. 3, 1759, not *Epidendrum ophioglossoides* Jacq., Sel. Stirp. Amer. Hist. 225, 1763.

Syn.: *Dendrobium ophioglossoides* (Jacq.) Sw. in Nov. Act. Soc. Sci. Upsala 6: 83, 1799.

Stelis ophioglossoides (Jacq.) Sw. in Schrader, Journ. Bot. 2: 239, 1800.

Type: Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Specklinia floribunda Lindl., Gen. and Sp. Orch. Pl. 9, 1830.

Pleurothallis floribunda (Lindl.) Lindl. in Bot. Reg. 28: misc. p. 73, 1842, not Poepp. & Endl. 1836; Rolfe in Kew Bull. 277, 1893; Cogn. in Urb., Symb. Antill. 6: 421, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 205, 1939; Hodge in Lloydia 17: 213, 1954.

Type: Martinique, without proper locality. Coll. Sieber no. 206! (K, W).

Epiphytic, densely caespitose plants. Secondary stems arcuate to erect, distinctly angular, triquetrous in cross section, with a single sheath in middle, up to 9 cm. long. Leaves coriaceous, narrowly oblong-elliptic to elliptic, acute or obtuse, sessile and obliquely decurrent on stem, up to 5 cm. long and 1 cm. wide. Inflorescences 2–3, from a common scarious spathe, elongate, rather slender, with a flexuous rachis, loosely many-flowered, as long as or somewhat surpassing the subtending leaf. Flowers yellow, distichous. Dorsal sepal ovate-lanceolate, concave, abruptly acuminate, dorsally distinctly carinate, up to 4 mm. long. Lateral sepals more or less connate to middle, concave, similar to dorsal sepal, acuminate, dorsally carinate, up to 4 mm. long. Petals linear-oblong, acute, entire or obscurely denticulate, up to 2.5 mm. long. Lip from a cuneate base 3-

lobed; lateral lobes falcate, acute; midlobe ovate, acute or subacuminate; disc with 2 parallel keels extending beyond junction of midlobe and lateral lobes; whole lip up to 2.5 mm. long. Column somewhat arcuate with denticulate clinandrium, up to 2 mm. long. Pedicellate ovary up to 2 mm. long.

Flowers from January to May.

General Distribution: Endemic in Lesser Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

Observation: Jacquin based his *Epidendrum ophioglossoides* in 1760 on Plumier's polynomial and on a drawing of its published subsequently by Burmann. In 1763, in his Select. Stirp. Amer. Historia, Jacquin described in detail and depicted one of his own collections assuming it to be identical with Plumier's illustration. Yet, the two original descriptions and illustrations are widely different. Jacquin's wrong identification, i.e. taxonomic judgment, thus, became a source of a persistent nomenclatorial error. His illustration is referable to the genus *Stelis*. As a matter of fact an examination of the very specimen from which Jacquin's illustration was prepared, now in the British Museum, has shown to be *Stelis scabrida* Lindl.

Pleurothallis pruinosa Lindl. in Bot. Reg. 28: misc. p. 75, 1842; Cogn. in Urb., Symb. Antill. 6: 404, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 192, 1939; Hodge in Lloydia 17: 213, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 391, 1956. — **Fig. 34.**

Type: Surinam, without proper locality. Coll. Splitgerber no. 527! (K–L, W).

Epiphytic, semirhizomatous plants, up to 13 cm. tall. Primary stem or rhizome indistinct, ascendent. Secondary stems more or less approximate, ascendent, rather slender to filiform, wiry, with a single caulescent sheath below the middle, up to 10 cm. long. Leaves coriaceous, ovate-lanceolate to oblong-lanceolate, acute, sessile, up to 5 cm. long and 7 mm. wide. Inflorescence slender, arcuate, racemose, loosely several-flowered, as long as or shorter than subtending leaf. Flowers translucent, yellowish or greenish white, rarely with a purplish suffusion. Dorsal sepal ovate, concave, acute, up to 3.5 mm. long. Lateral sepals united at apex, obscurely bidentate, boat-shaped, up to 3.5 mm. long. Petals linear-filiform, spreading, acute, up to 3 mm. long. Lip ovate in outline, entire, acute, up to 1.5 mm. long. Column short, fleshy; less than 1 mm. long. Pedicellate ovary up to 2 mm. long.

Flowers more or less throughout the year.

General Distribution: Costa Rica, Panama, Greater Antilles, Guayanas, Venezuela, Colombia, Ecuador, Peru.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.

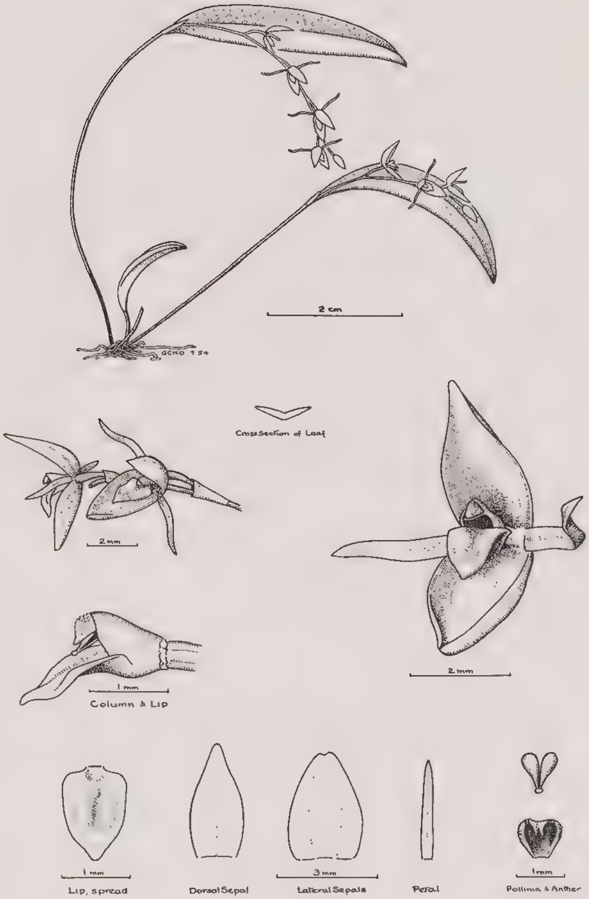


FIGURE 34. *Pleurothallis pruinosa* Lindl. Drawn by G. C. K. Dunsterville.

Pleurothallis ruscifolia (Jacq.) R. Br. in Ait., Hort. Kew. ed. 2, 5:211, 1813; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 588, 1897; Cogn. in Urb., Symb. Antill. 6: 405, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 192, 1939; Hodge in Lloydia 17: 213, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 392, 1956. — **Fig. 35.**

Basionym: *Epidendrum ruscifolium* Jacq., Enum. 29, 1760, based on *Helleborine rusci majoris folio*, Plum. Cat. 9, 1703, and Icon. Burm. t. 176, f. 2, 1759.

Type: Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Epiphytic, densely caespitose plants, up to 30 cm. tall, commonly shorter. Secondary stems rather slender, erect with a median sheath, up to 15 cm. long. Leaves elliptic-lanceolate to linear-lanceolate, acute or abruptly acuminate, basally tapering into a 1.5 cm.-long petiole, including petiole up to 12 cm. long and 3 cm. wide. Inflorescence fasciculate, many-flowered. Flowers rather thin in texture with spreading segments, yellow to pale greenish yellow. Dorsal sepal linear-lanceolate, acuminate, up to 10 mm. long and 3 mm. wide. Lateral sepals connate to apex, linear-lanceolate, acuminate, up to 10 mm. long. Petals linear-filiform, acute, up to 6 mm. long. Lip fleshy, more or less sigmoid in outline, acute in front, up to 2 mm. long. Column very short. Pedicellate ovary up to 1 cm. long.

Flowers more or less throughout the year.

General Distribution: Central America, Greater Antilles, northern South America.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

Pleurothallis testaefolia (Sw.) Lindl. in Ann. & Mag. Nat. Hist. ser. 1, 3: 328, 1858; Cogn. in Urb., Symb. Antill. 6: 414, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 201, 1939. — **Fig. 36.**

Basionym: *Epidendrum testaefolium* Sw., Nov. Gen. & Sp. Pl., Prodr. 122, 1788.

Type: Jamaica, without proper locality. Coll. Swartz s.n.! (B, BM).

Epiphytic, rhizomatous herbs, up to 3 cm. tall. Primary stem or rhizome creeping, completely enclosed by imbricating scarious sheaths. Secondary stems remote, ascending, completely enclosed by 2–3 scarious sheaths, up to 10 mm. long. Leaves dark green with purple spots, coriaceous, elliptic to oblong-elliptic, acute or obtuse, up to 3 cm. long and 1.5 cm. wide. Flowers single, sessile, dark purple. Dorsal sepal oblong-elliptic, obtuse, externally densely long pilose, up to 4 mm. long. Lateral sepals connate to about middle, similar to dorsal sepal in size and shape, externally long pilose. Petals spathulate with round apex, occasionally subserrulate, up to 2 mm. long. Lip distinctly unguiculate, suborbicular,

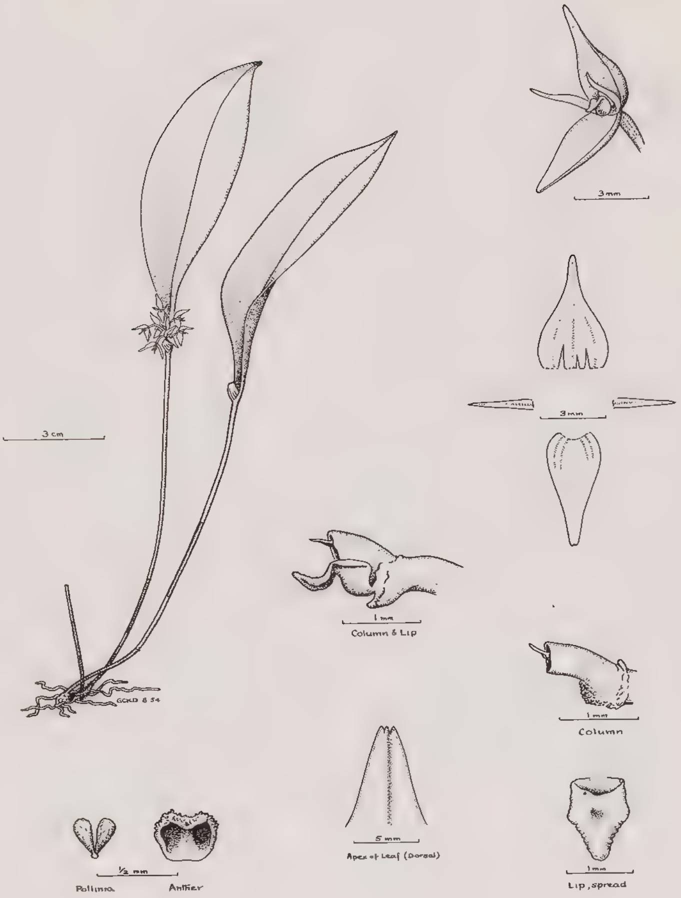


FIGURE 35. *Pleurothallis ruscifolia* (Jacq.) R. Br.
Drawn by G. C. K. Dunsterville.

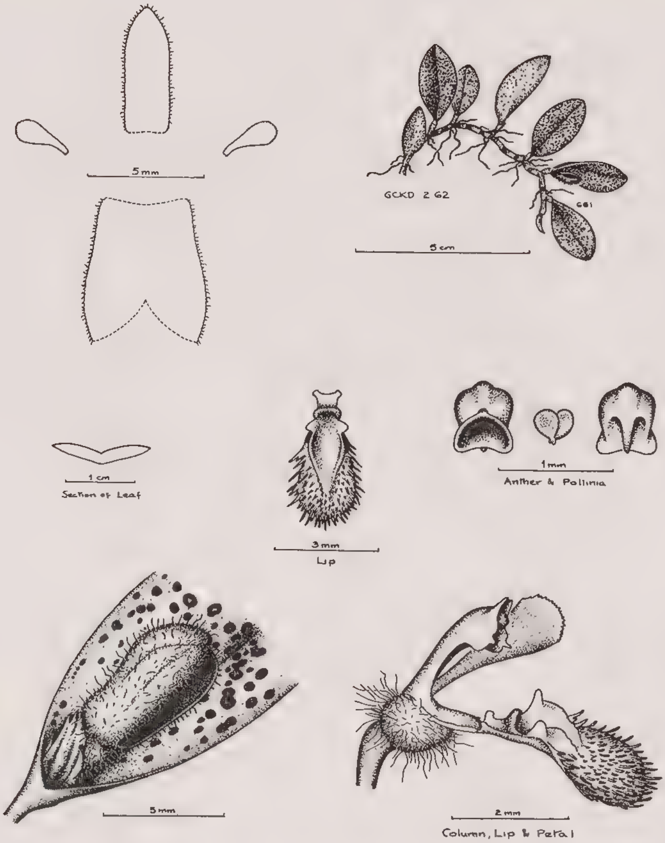


FIGURE 36. *Pleurothallis testaefolia* (Sw.) Lindl.
Drawn by G. C. K. Dunsterville.

occasionally somewhat pandurate, round in front, completely covered with long, more or less stiff hairs; disc provided with a pair of keels; whole lip up to 2.5 mm. long. Column biauriculate, up to 2 mm. long.

Flowers from November to February.

Distribution: Costa Rica, Greater Antilles, Venezuela.

Distribution in Lesser Antilles: Martinique!, St. Lucia!.

Pleurothallis Wilsoni Lindl. in Ann. & Mag. Nat. Hist. ser. 3, 1: 326, 1858; Cogn. in Urb., Symb. Antill. 6: 407, 1909.

Type: Jamaica, Bethabara. Coll. Wilson no. 1079! (K).

Syn.: *Pleurothallis Wilsoni* var. *Quentiniana* Stehlé, Fl. Descr. Antill. Fr. 1: 196, 1939.

Type: Guadeloupe, Bains Jaunes. Coll. Quentin & Stehlé no. 351! (NY, P).

Epiphytic, rhizomatous plants up to 7 cm. tall. Primary stems or rhizome slender, long repent. Secondary stems remote, ascendent, rather slender, wiry, up to 5 cm. long. Leaves sessile, chartaceous, narrowly elliptic to elliptic-lanceolate, acute, up to 4.5 cm. long and 9 mm. wide, commonly somewhat smaller. Peduncle 1–2, filiform, up to 10 mm. long, 1-flowered. Flowers greenish yellow, often with violet stripes. Dorsal sepal oblong-ovate to ovate-lanceolate, acute or obtuse, up to 4 mm. long. Lateral sepals more or less connate to apex, similar to dorsal sepal. Petals subspathulate to subrhombic with obscurely serrulate margins, up to 2 mm. long. Lip fleshy, ovate in outline, obscurely 3-lobed; lateral lobes suborbicular to subtriangular, rounded; midlobe oblong-ligulate, obtuse or truncate, margins finely and obscurely denticulate, surface finely papillose; disc without keels; whole lip up to 2.5 mm. long. Pedicellate ovary up to 5 mm. long.

Flowers from July to October.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe!.

Observation: *Pleurothallis Wilsoni* var. *Quentiniana* differs from other collections we have seen from the entire area of distribution in having larger leaves. This character in our opinion does not warrant the recognition of a varietal status.

LEPANTHES Swartz

Lepanthes Sw. in Nov. Act. Soc. Sci. Upsala 6:85, 1799.

Sepals spreading, basally somewhat connate, free, or lateral sepals united at various lengths. Petals commonly transverse, much wider than long, adnate to the base of column. Lip with a distinct claw which is fully adnate to face of column, the free blade usually 2-parted or 2-lobed, each lobe more or less dolabriform with a thickened margin. Column cylindric, much shorter than the sepals. Clinandrium truncate. Anther operculate, incumbent. Pollinia 2, without a stipe. Rostellum linear, well-developed, erect.

Epiphytic or lithophytic, caespitose herbs. Secondary stems approximate, completely enclosed by imbricating, funnel-shaped, costate sheaths with distinct thickened, often muricate or ciliolate margins, terminated by a single leaf. Inflorescence rather slender, either erect and often surpassing the leaves or shorter and often appressed to the lower surface of the leaf. Rachis racemose, more or less fractiflex, few- to several-flowered. Flowers commonly small, variously colored and normally produced in succession.

Lectotype: *Epidendrum ovale* Sw. [Britton & Wilson in Sci. Surv. Porto Rico 5, pt. 2:206, 1924].

Approximately 100 species distributed throughout tropical America.

Key to Species

1. Inflorescences shorter than subtending leaf; flowers small, sepals acute, up to 2.5 mm. long . . . . *L. aurea*

1a. Inflorescences longer than subtending leaf; flowers larger; sepals acuminate, up to 5 mm. long . . . . *L. Dussii*

Lepanthes aurea Urb. in Fedde Rep. 15: 105, 1917; Hespenheide in Notul. Nat. No. 429: 1, 1971.

Type: Guadeloupe, near Rivière Noire. Coll. Duss no. 3981! (ny, p).

Epiphytic, caespitose herbs, up to 8 cm. tall. Secondary stems approximate, enclosed by 4–6 puberulent sheaths. Leaves ovate-lanceolate, acute, up to 3 cm. long and 1 cm. wide. Inflorescences 1–5, shorter than the subtending leaf, loosely racemose, few-flowered. Bracts glabrous, about 1 mm. long. Flowers appear in succession, yellow, glabrous. Dorsal sepals ovate-elliptic to almost suborbicular, acute, up to 2.5 mm. long and 2 mm. wide. Lateral sepals connate to middle, obliquely ovate to suborbicular, subacute, up to 2 mm. long and 1.5 mm. wide. Petals 1 mm. long and 2.5 mm. wide, ciliolate, transversely bilobed to more or less crescent-shaped; anterior lobe triangular, posterior lobes subquadrate. Lip up to 1.5 mm. long and 1 mm. wide, 3-lobed; median lobe a small ciliolate apicule, lateral lobes each dolabriform with ciliolate margins. Column arcuate, about 1 mm. long.

Flowers from August to February.

General Distribution: Endemic in Lesser Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, St. Vincent!.

OBSERVATION: Specimens referable to this species have been wrongly identified and listed by Cogniaux and Stehlé as *Lepanthes tridentata* Sw. and *L. fulva* Lindl.

Lepanthes Dussii Urb. in Fedde Rep. 15: 106, 1919; Hespenheide in Notul. Nat. No. 429: 2, 1971.

Type: Guadeloupe, Nez Cassé. Coll. Duss no. 4177! (BR, P).

Epiphytic, caespitose herbs up to 9 cm. tall. Secondary stems approximate, completely enclosed by 4–6 costate, ciliate sheaths. Leaves subsessile, elliptic to elliptic-obovate, acute to obtuse, up to 2 cm. long and 8 mm. wide. Inflorescences 1–2, much surpassing the leaves, up to 7 cm. long. Rachis more or less fractiflex, racemose. Bracts ciliolate. Flowers appear in succession, yellow, expanded, about 1 cm. from tip to tip. Dorsal sepal ovate-lanceolate, acuminate, concave, up to 5 mm. long and 3 mm. wide. Lateral sepals connate to middle, together similar in shape and size to dorsal sepal. Petals reniform-cordate, ciliolate along margins, subapiculate in front, about 0.5 mm. long and 0.7 mm. wide. Lip from a cordate base ovate-triangular, bilobed in front with a small ciliolate apicule in middle, not dolabriform with thickened ciliolate margins; whole lip up to 1.5 mm. long. Column cylindric, rather slender, 1.5 mm. long. Pedicellate ovary up to 6 mm. long.

Flowers from August to February.

GENERAL DISTRIBUTION: Endemic in Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, St. Lucia!.

BRACHIONIDIUM Lindley

Brachionidium Lindl., Folia Orch. Brachionidium 1, 1859.

Sepals and petals similar, acuminate or caudate. Lateral sepals connate, bifid at apex. Lip entire or lobed, adnate to base column, flat or sigmoid, fleshy. Column rather short, erect, without a foot. Clinandrium 3-lobed, lateral lobes large, fleshy. Rostellum broadly deltoid or triangular. Stigmata confluent. Anther terminal, operculate, incumbent. Pollinia 6, held together by viscid material, without a stipe.

Epiphytic plants. Primary stem or rhizome scandent, completely enclosed by scarious sheaths. Secondary stems remote, short to almost nil, 1-leaved. Leaves subcoriaceous or papery with a short petiole. Peduncle 1-flowered.

LECTOTYPE: *Restrepia parvifolia* Lindley [Garay in Can. Journ. Bot. 34:729, 1956].

Genus of some 18 species native to West Indies, Central America and northern South America.

KEY TO SPECIES

1. Sepals and petals distinctly caudate; lip less than half the length of sepals 2
1a. Sepals and petals acuminate, but not caudate; lip half as long as the sepals .... *B. Dussii*
2. Rhizome scandent; leaves fleshy up to 3.5 cm. long; sepals up to 3 cm. long; lip rhombic .... *B. Sherringii*
2a. Rhizome erect-ascending; leaves coriaceous, up to 1.5 cm. long; sepals up to 1 cm. long; lip sigmoid .... *B. parvum*

Brachionidium Dussii Cogn. in Urb., Symb. Antill. 6: 451, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 220, 1939; Garay in Can. Journ. Bot. 34: 731, 1956.

Type: Guadeloupe, Bains Jaunes. Coll. Duss no. 4149.

Rhizome erect, short, rather slender. Secondary stems erect, covered with a few scarious sheaths, up to 6 mm. long, 1-leaved. Leaves elliptic-oblong, with a very short petiole, up to 2 cm. long and 6 mm. wide. Peduncle filiform, longer than subtending leaf, up to 3 cm. long. Flowers rather small. Dorsal sepal ovate, abruptly acuminate with ciliate margins, up to 6 mm. long and 3.5 mm. wide. Lateral sepals united at apex, ovate, shortly and obtusely apiculate with ciliolate margins, up to 6 mm. long and 4 mm. wide. Petals narrowly ovate, acute to subacuminate with ciliolate margins, up to 6 mm. long and 3 mm. wide. Lip rhombic in outline, up to 3 mm. long and wide, 3-lobed; lateral lobes triangular, midlobe obscurely developed; disc glabrous or at base provided with an obscurely developed callus. Column short, 1.5 mm. long. Capsule trigonous, up to 7 mm. long.

Flowers during June.

GENERAL DISTRIBUTION: Endemic in Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe.

Brachionidium parvum Cogn. in Fedde Rep. 6; 307, 1909, in Urb., Symb. Antill. 6: 451, 1910; Garay in Can. Journ. Bot. 34: 738, 1956.

Syn.: *Brachionidium Sherringii* var. *parvum* (Cogn.) Stehlé, Fl. Descr. Antill. Fr. 1: 219, 1939; Schultes in Amer. Orch. Soc. Bull. 25: 386, 1956.

Type: Grenada, between Soulier and Azemar. Coll. Broadway no. 268! (BR).

Rhizome erect-ascending, slender, enclosed by approximate or imbricate tubulose sheaths with a short mucronate apex. Secondary stems erect, very short, completely enclosed by two imbricating sheaths similar to those on rhizome, up to 5 mm. long. Leaves coriaceous, elliptic, with very short petiole, up to 15 mm. long and 5 mm. wide. Peduncle filiform, much longer than the subtending leaf. Flowers pale yellow. Sepals similar, ovate-lanceolate, apically long-caudate, acuminate with ciliate margins; lateral sepals connate to a bidentate apex, up to 10 mm. long. Petals similar to dorsal sepal, somewhat oblique, ovate-lanceolate, caudate with ciliate margins, up to 8 mm. long. Lip minute, sigmoid, basal part subquadrate, apical part triangular; disc provided with a fleshy muricate bilobed callus. Column short, fleshy, with spreading lobes.

Flowers from October to January.

General Distribution: Venezuela.

Distribution in Lesser Antilles: Guadeloupe!, Martinique!, Grenada!.

Brachionidium Sherringii Rolfe in Kew Bull. 4, 1893; Cogn. in Urb., Symb. Antill. 6: 450, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 215, 1939; Hodge in Lloydia 17: 215, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 386, 1956; Garay in Can. Journ. Bot. 34: 740, 1956.

Type: Grenada, top of Fedon's Camp. Coll. Sherring s.n.! (k).

Primary stem or rhizome elongate, branching, scandent, completely enclosed by scarious mucronate sheaths. Secondary stems erect or ascending, enclosed by 2–3 imbricating sheaths, up to 9 mm. long. Leaves fleshy, elliptic-oblong, acute, basally contracted into an up to 6 mm.-long petiole, include petiole up to 3.5 cm. long and 12 mm. wide. Peduncle erect, slender, up to 4 cm. long. Flowers rather showy, pale green or yellow. Dorsal sepal ovate-lanceolate, prominently caudate, up to 3 cm. long and 5 mm. wide. Lateral sepals connate to a bifid apex, similar to dorsal sepal in shape and size. Petals ovate-lanceolate, prominently caudate with somewhat ciliolate margins, up to 2.5 cm. long and 4 mm. wide. Lip with a short claw, rhombic in outline, obscurely 3-lobed above; lateral lobes triangular, acute; terminal lobe broadly deltoid, acute; disc provided with a distinct sublobulate callus above the base; whole lip up to 2 mm. long and wide. Column short, with ovate-falcate lobes.

Flowers from March to July.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.

OCTOMERIA R. Brown

Octomeria R. Br. in Ait., Hort. Kew., ed. 2, 5: 211, 1813.

Sepals and petals similar. Petals somewhat shorter. Lip fleshy, articulate with column-foot, entire or lobed; disc provided with a pair of obliquely-inserted fleshy lamellae. Column cylindric, more or less arcuate, basally extended into a distinct foot. Anther operculate, incumbent. Pollinia 8, without a stipe. Rostellum well-developed. Stigmata under rostellum, confluent.

Epiphytic or lithophytic scandent or caespitose plants. Primary stem rhizomatous or absent. Secondary stems remote or approximate, entirely enclosed by imbricating sheaths, terminated by a single leaf. Leaves fleshy or coriaceous, sessile or petiolate. Inflorescence terminal, at joint of leaf and secondary stem, fasciculate or 1-flowered. Flowers small.

TYPE: *Epidendrum graminifolium* L. [R. Br. in Ait., Hort. Kew., ed. 2, 5:211, 1813].

About 120 species in tropical America.

KEY TO SPECIES

1. Secondary stem proportionately about as long as terminal leaf (about 1:1); leaf coriaceous, acute; flowers small with 3 to 5 mm.-long sepals .... *O. apiculata*

1a. Secondary stem proportionately much shorter than the terminal leaf (about 1:2); leaf fleshy, acuminate; flowers larger with 8–10 mm.-long sepals .... *O. graminifolia*

Octomeria apiculata (Lindl.) Garay & Sweet in Journ. Arnold Arb. 53: 391, 1972. — **Fig. 37.**

Basionym: *Pleurothallis apiculata* Lindl., Folia Orch. Pleurothallis 17, no. 88, 1859.

Type: Venezuela, without exact locality. Coll. Fendler no. 2155! (K–L).

Epiphyte. Primary stem or rhizome scandent, often covered with fibrous remnants of sheaths. Secondary stems rather slender, obliquely ascending, enclosed by 3–4 imbricating tubular scarious sheaths, up to 4.5 cm. long, proportionately (1:1) as long as or somewhat shorter than terminal leaf. Leaves coriaceous, narrowly ovate-elliptic to oblong-elliptic, acute, basally contracted into a short, up to 4 mm.-long petiole, including petiole up to 6.5 cm. long and 7 mm. wide. Inflorescence fasciculate, 1- to 2-flowered. Flowers rather thin in texture, yellow, fragrant. Sepals similar, ovate to ovate-lanceolate, acute, 3–5 mm. long and 2 mm. wide. Petals ovate to rhombic-ovate, acute or acuminate, occasionally somewhat contracted below tip, hence appear apiculate, up to 4.5 mm. long and 1.5 mm. wide. Lip fleshy with distinct claw, 3-lobed; lateral lobes erect, more or less angular, midlobe ovate to oblong-ovate, obtuse or more or less 3-dentate at apex, margins erose-denticulate, disc provided with a pair of obliquely inserted fleshy lamellae at junction of midlobe and lateral lobes; whole lip up to 3 mm. long and 2 mm. wide. Column somewhat arcuate, up to 2 mm. long. Pedicellate ovary up to 4 mm. long.

Flowers from March to June.

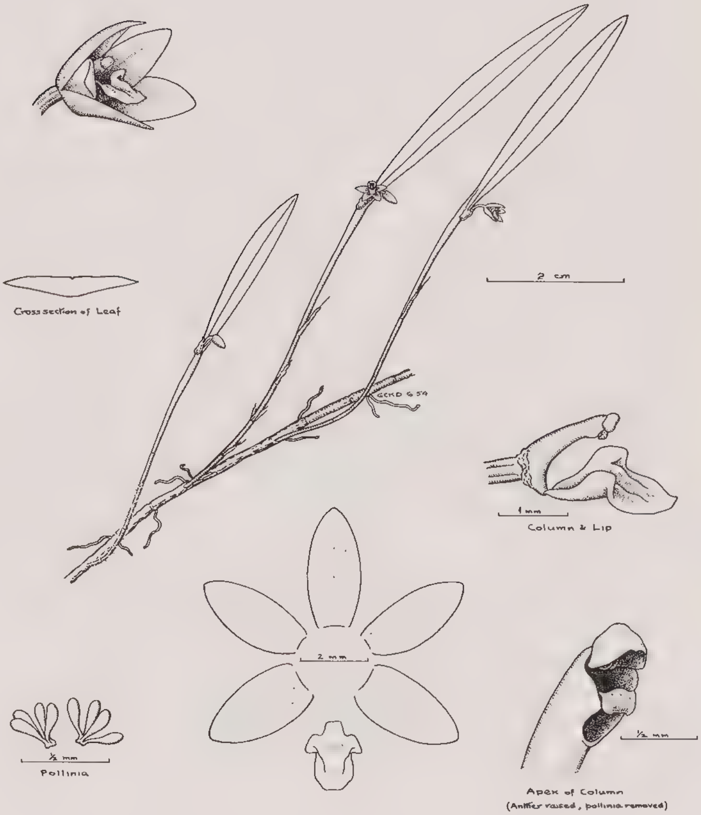


FIGURE 37. *Octomeria apiculata* (Lindl.) Garay & Sweet.
Drawn by G. C. K. Dunsterville.

General Distribution: Nicaragua, Costa Rica, Venezuela, Trinidad, Tobago.

Distribution in Lesser Antilles: Guadeloupe, without proper locality. Coll. Beau s.n.! (P); Coll. Beaupertius s.n.! (P). Grenada: St. George's Annandale. Coll. Broadway no. 1850! (AMES); Grand Etang. Coll. Broadway no. 1580! (AMES); Mirabeau Mts. Coll. Sherring s.n.! (K), Coll. Broadway s.n.! (K).

Octomeria graminifolia (L.) R. Br. in Ait., Hort. Kew., ed. 2, 5: 211, 1813; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 589, 1897; Cogn. in Urb., Symb. Antill. 6: 453, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 221, 1939; Hodge in Lloydia 17: 215, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 391, 1956.

Basionym: *Epidendrum graminifolium* L., Sp. Pl., ed. 2, 2: 1353, 1763, based on *Helleborine graminea, repens, biflora*, Plum. Cat. 9, 1703 and Icon. Burm. t. 176, f. 1, 1759.

Type: Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Epiphytes. Primary stem or rhizome elongate, scandent, completely covered with fibrous remnants of sheaths. Secondary stems remote, obliquely ascending, then erect, completely enclosed by 3–5 tubular sheaths, up to 5 cm. long, proportionately (1:2) much shorter than terminal leaf. Leaves fleshy, erect, narrowly oblong-lanceolate to oblong-linear, acuminate, gradually tapering to a sessile base, up to 11 cm. long and 1 cm. wide. Inflorescence fasciculate, 1- to 2-flowered. Flowers yellow to yellowish green. Sepals and petals similar, ovate-lanceolate, long acuminate, 8–10 mm. long and 3 mm. wide. Petals somewhat smaller. Lip fleshy, with a short claw, 3-lobed; lateral lobes small, subrotund; midlobe ovate, acute or subacuminte with erose-denticulate margins; disc provided with 2 obliquely inserted fleshy lamellae at junction of midlobe and lateral lobes; whole lip up to 6 mm. long and 3 mm. wide. Column arcuate, up to 3 mm. long. Pedicellate ovary up to 1 cm. long.

Flowers throughout the year.

General Distribution: Trinidad.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

MALAXIS Swartz

Malaxis Sw., Nov. Gen. & Sp. Pl., Prodr. 8, 1788.

Sepals free, subequal, spreading; lateral sepals often basally more or less connate. Petals commonly filiform, spreading or reflexed, occasionally circinate. Lip free from column, sessile, entire or lobed, basally cordate or auriculate and enveloping the column. Column short, cylindric with a reclining, oblique, membranaceous clinandrium, basally footless. Anther terminal, persistent, suberect to the axis of the column, 2-celled. Pollinia 4, waxy, without a caudicle or viscidium. Stigmata transverse, confluent under the rostellum.

Terrestrial or epiphytic herbs, caespitose or with a distinct rhizome. Secondary stem fleshy, basally extended in a jointed, small pseudobulb, leafy. Leaves one to several, fleshy or membranaceous, conduplicate or plicate, more or less petiolate and articulate with tubular leaf-sheath. Inflorescence terminal, pedunculate, racemose or pseudoumbellate, loosely to densely many-flowered. Flowers small.

LECTOTYPE: *Malaxis spicata* Sw. [Britton & Brown, Ill. Fl. No. U.S. and Canada, ed. 2, 1: 570, 1913].

Approximately 300 species, cosmopolitan, except in Australia and New Zealand.

KEY TO SPECIES

1. Inflorescence congested, subumbellate; lip distinctly 3-lobed, the midlobe much surpassing the lateral lobes .... *M. umbelliflora*
1a. Inflorescence elongate, racemose; lip entire, at most with a small terminal apicule 2
2. Lip longer than broad, sagittate-hastate with triangular apex .... *M. Massonii*
2a. Lip broader than long, transverse, cordate-reniform with a small apicule in front .... *M. major*

Malaxis major (Rchb. f.) Leon ex Hawkes in Phytologia 3: 260, 1950.

Basionym: *Microstylis major* Rchb. f. in Flora 71: 153, 1888; Cogn. in Urb., Symb. Antill. 6: 371, 1909.
Type: Puerto Rico, without proper locality and collector.! Herb. Reichenbach no. 40873 (W).

Syn.: *Microstylis rotundata* Ridl. in Journ. Linn. Soc. Bot. 24: 322, 1888; Cogn. in Urb., Symb. Antill. 6: 371, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 71, 1939.
Malaxis rotundata (Ridl.) O. Ktze., Rev. Gen. Pl. 2: 673, 1891.
Type: Guadeloupe, without proper locality. Coll. L. C. Richard s.n.! (BM).

Terrestrial herbs, rather variable in size, up to 40 cm. tall. Stems approximate, fleshy, basally thickened into a short pseudobulb, completely enclosed by leaf-sheaths and 1–2 ovate, acuminate, scarious sheaths. Leaves 2, subopposite, thin in texture, broadly ovate to ovate-elliptic, acute or subacuminate, basally subcordate and contracted into a short petiole, up to 13 cm. long and 10 cm. wide, commonly smaller. Inflorescence terminal, erect; peduncle angular, terminated by a short densely-flowered up to 13 cm.-long raceme. Flowers yellowish green with spreading segments. Dorsal sepal broadly ovate to elliptic, obtuse, up to 5 mm. long. Lateral sepals obliquely ovate, acute to obtuse, up to 4 mm. long. Petals linear-lanceolate, reflexed, acuminate, up to 3 mm. long. Lip transverse, cordate-reniform, with a small apicule in front, laterally with round lobes; disc thickened in front of column; whole lip up to 3.5 mm. long and 7 mm. wide. Column short, up to 1 mm. long. Pedicellate ovary cylindric, up to 12 mm. long.

Flowers from August to March.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!.

Malaxis Massonii (Ridl.) O. Ktze., Rev. Gen. Pl. 2: 673, 1891.

Basionym: *Microstylis Massonii* Ridl. in Journ. Linn. Soc. Bot. 24: 323, 1888; Cogn. in Urb., Symb. Antill. 6: 369, 1909.
Type: St. Kitts, without proper locality. Coll. Masson s.n.! (BM).

Terrestrial herb, up to 40 cm. tall. Primary stem or rhizome repent. Secondary stems, fleshy, erect, basally somewhat thickened into a short pseudobulb enclosed by 2–3 ovate-lanceolate, acuminate sheaths. Leaves 2, subopposite, from a subcordate base broadly ovate to ovate-elliptic, distinctly petiolate, obtuse, up to 8 cm. long and 6 cm. wide; petiole up to 4 cm. long. Inflorescence terminal, erect; peduncle glabrous, somewhat angled, densely racemose above, terminated by an up to 8 cm.-long raceme, commonly shorter, densely many-flowered. Flowers small, greenish yellow, with spreading segments. Sepals similar, ovate-elliptic, with revolute margins, up to 4 mm. long. Petals linear, up to 3 mm. long. Lip from sagittate base hastate with an acute, more or less triangular apex, basally provided with long, rather narrow, parallel auricles; whole lip up to 4 mm. long. Column very short, less than 1 mm. long. Pedicellate ovary slender, up to 1 cm. long.

Flowers during December.

General Distribution: Greater Antilles, Trinidad.

Distribution in Lesser Antilles: St. Kitts!, Guadeloupe!, Dominica!, Martinique!.

Observation: Specimens referable to this species often have been reported in the literature under *Malaxis spicata* Sw., a species limited in distribution to the Greater Antilles.

Malaxis umbelliflora Sw., Nov. Gen. & Sp. Pl., Prodr. 119, 1788; Hodge in Lloydia 17: 195, 1954.

Syn.: *Microstylis umbellulata* (Sw.) Lindl., Gen. and Sp. Orch. Pl. 19, 1830; Rolfe in Kew Bull. 277, 1893.

Microstylis umbelliflora (Sw.) Hitchc. in Mo. Bot. Gard. Rep. 4: 132, 1893; Stehlé, Fl. Descr. Antill. Fr. 1: 72, 1939.
Type: Jamaica, without proper locality. Coll. Swartz s.n.! (BM, S, UPS).

Terrestrial herbs up to 45 cm. tall. Stem erect, fleshy, basally somewhat thickened into a pseudobulb completely enclosed by 2–3 imbricating herbaceous sheaths. Leaves 2, auriculate with sheathing leaf-bases, opposite to subopposite, rather broadly elliptic to ovate-elliptic, acute, basally contracted into a short petiole, occasionally subcordate, up to 15 cm. long and 11 cm. wide. Inflorescence elongate, much surpassing the leaves. Peduncle more or less angular, glabrous, terminated by a congested subumbellate densely many-flowered raceme. Flowers rather small, pale green to greenish yellow, with spreading segments. Sepals similar, ovate, obtuse with revolute margins, thus appearing rather linear in outline, up to 3 mm. long. Petals linear, 3 mm. long and less than 0.5 mm. wide. Lip from a sagittate base 3-lobed. Lateral lobes roundish in front, separated from the midlobe by distinct sinuses; midlobe linear-ligulate to linear-lanceolate, much surpassing the lateral lobes which basally extend in semifalcate auricles; whole lip up to 4 mm. long. Column very short, less than 1 mm. long. Pedicellate ovary slender, up to 1 cm. long.

Flowers from October to January.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Guadeloupe!, Dominica!, St. Vincent!.

OBSERVATION: Specimens referable to this species have been reported also under *Malaxis spicata* Sw. Although both species have similar flowers with 3-lobed lips, they are easily separable on the basis of elongate versus subumbellate inflorescences.

LIPARIS L. C. Richard

Liparis L. C. Rich., Orch. Eur. Annot. 21, 1817.

Sepals and petals free, spreading, occasionally reflexed with revolute margins. Lip articulate with base of column, porrect or reflexed, simple or lobed, occasionally lacerate. Column arcuate-clavate, narrowly marginate or alate, without a column-foot. Anther terminal, operculate, incumbent. Pollinia 4, waxy, ovoid, without a caudicle or viscidium. Pedicellate ovary cylindric.

Terrestrial or epiphytic herbs, often with well-developed rhizomes. Roots fleshy. Stem often pseudobulbous, leaf-bearing. Leaves thin in texture, conduplicate or plicate, basal or cauline, sessile or petiolate, sheathing the stem. Inflorescence elongate, peduculate, terminated by a lax, few- to many-flowered raceme. Flowers variable in size, minute to showy, rather thin in texture.

TYPE: *Ophrys Loeselii* L. [L. C. Rich., Orch. Eur. Annot. 21, 1817].

A cosmopolitan genus of some 200 species dispersed throughout the tropical and subtropical regions of both hemispheres.

Liparis nervosa (Thunb.) Lindl., Gen. and Sp. Orch. Pl. 26, 1830.— **Fig. 38.**

Basionym: *Ophrys nervosa* Thunb., Fl. Jap. 27, 1784.
Type: Japan, without proper locality. Coll. Thunberg s.n.! (UPS).

Syn.: *Liparis elata* Lindl. in Bot. Reg. 14: t. 1175, 1828; Ridl. in Journ. Linn. Soc. 22: 259, 1886; Cogn. in Urb., Symb. Antill. 6: 374, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 73, 1939; Hodge in Lloydia 17: 195, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 390, 1956.
Type: Brazil, Rio de Janeiro. Coll. Chamberlain s.n.! (K–L).

Terrestrial or lithophytic, occasionally epiphytic herbs, up to 70 cm. tall. Pseudobulbs conical, completely enveloped in leaf-sheaths, 3–4 cm. long. Leaves 2 to 5, thin, plicate, ovate, ovate-elliptic or ovate-lanceolate, acute or subacuminate, sheathing the stem below, up to 30 cm. long and 10 cm. wide. Scape erect, much surpassing the leaves, glabrous, terminating in a lax, many-flowered raceme, up to 70 cm. long. Bracts erect, spreading or reflexed, usually shorter than the pedicellate ovaries. Flowers greenish yellow to purple with reflexed sepals and petals. Dorsal sepal oblong-ligulate to elliptic-oblong, acute or obtuse, margin revolute, up to 8 mm. long and 3 mm. wide. Lateral sepals falcate-ovate, acute or obtuse, margins revolute, up to 7 mm. long and 5 mm. wide. Petals linear-oblanceolate to linear-spathulate, up to 7 mm. long and 3 mm. wide. Lip cuneate-flabellate, bilobed in front, strongly recurved with triangular-obtuse callus at base; whole lip up to 5 mm. long. Column fleshy, somewhat arcuate, thin-margined in front. Pedicellate ovary cylindric, up to 1.5 cm. long.

Flowers from June to December.

GENERAL DISTRIBUTION: Pantropical.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

OBSERVATION: For a complete synonymy and discussion see Garay in Wiggins & Porter, Flora of the Galapagos Islands 916, 1971.

JACQUINIELLA Schlechter

Jacquiniella Schltr. in Fedde Rep. Beih. 7: 123, 1920.

Sepals similar, free or basally more or less connate; lateral sepals decurrrent on cuniculate ovary. Petals somewhat shorter than sepals, free. Lip free or basally partially adnate to column, parallel with column, continuous with cuniculus, as long as the petals. Column short, free or almost free from lip, obscurely winged, footless, basally extended in a cuniculus.

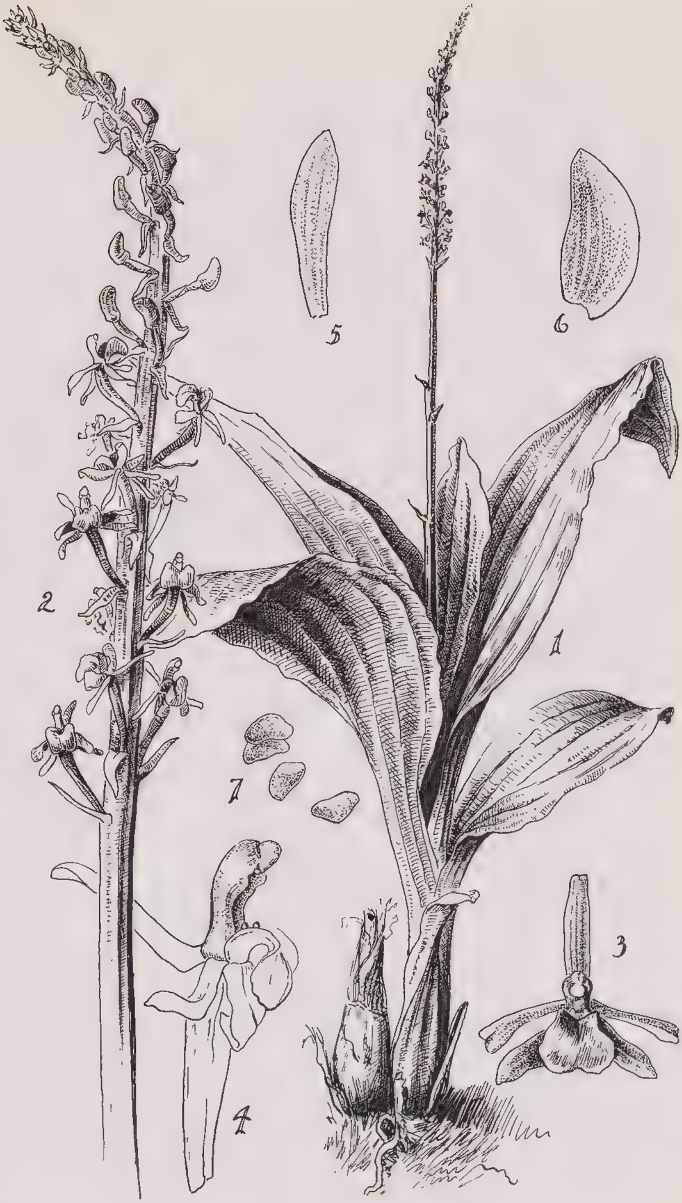


FIGURE 38. *Liparis nervosa* (Thunb.) Lindl. 1, plant. 2, inflorescence. 3 and 4, flower. 5, petal. 6, lateral sepal. 7, pollinia. Redrawn from Blanche Ames Ames by G. W. Dillon.

Clinandrium excavated. Anther incumbent, cucullate. Pollinia 4, compressed, obovate to pyriform, without a stipe, but united in pairs by a small viscidium. Stigmata confluent below the suberect, bilobulate rostellum. Ovary cylindric, cuniculate in front, at times the cuniculus may not be obvious to naked eye.

Epiphytic, caespitose plants. Stems approximate, distichously leafy, completely enclosed by leaf-sheaths. Leaves fleshy, terete to laterally compressed, deciduous. Inflorescence terminal, fasciculate, subtended by a leaf-like bract. Flowers small, produced in succession.

Lectotype: *Epidendrum globosum* Jacq. [Britton & Wilson in Sci. Surv. Porto Rico 5, pt. 2: 197, 1924].

About 10 neotropical species.

Key to Species

1. Flowers small; sepals less than 5 mm. long; lip obovate in outline ...... *J. globosa*

1a. Flowers large; sepals at least 1 cm. long; lip linear-ligulate in outline .... *J. teretifolia*

Jacquiniella globosa (Jacq.) Schltr. in Fedde Rep. Beih. 7: 124, 1920; Stehlé, Fl. Descr. Antill. Fr. 1: 168, 1939; Hodge in Lloydia 17: 199, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 390, 1956. — **Fig. 39.**

Basionym: *Epidendrum globosum* Jacq., Enum. Syst., Pl. 29, 1760; Select. Stirp. Amer. Hist. 222, t. 133, f. 1, 1763; Select. Stirp. Amer. Hist., ed. icon. arch. pict. 107, t. 203, 1781; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 594, 1897; Boldingh, Fl. St. Eustat., Saba and St. Martin 42, 1909; Cogn. in Urb., Symb. Antill. 6; 480, 1910.

Type: Martinique, without proper locality. Coll. Jacquin. s.n. No specimen is known to us. The holotype is Jacquin's original illustration of which reproductions are cited above.

Epiphytic, caespitose plants up to 15 cm. tall. Stems terete, slightly flexuous, leafy. Leaves distichous, terete, fleshy, with a central groove, erect or somewhat arcuate, up to 2.5 cm. long, obtuse, basally articulate with tubular leaf-sheaths. Inflorescence fasciculate, 1-flowered. Flowers produced in succession, rather small, greenish yellow. Peduncle very short, up to 2 mm. long. Sepals oblong-linear, acute to obtuse, concave, up to 2.5 mm. long. Petals oblanceolate, acute, up to 2 mm. long. Lip concave, from a cuneate base obovate in outline, apiculate in front; lateral lobes erect, semi-ovate; midlobe fleshy, porrect, acute; disc basally provided with a semi-globose callus; whole lip up to 2 mm. long. Column very short, up to 1 mm. long. Ovary sessile, cylindric. Fruit a globose capsule.

Flowers through the year.

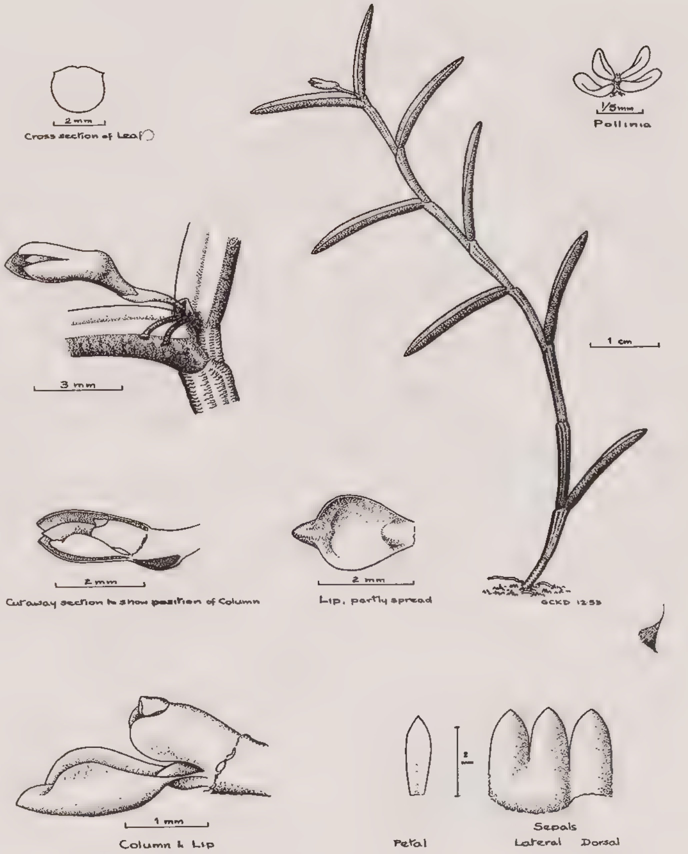


FIGURE 39. *Jacquiniella globosa* (Jacq.) Schltr. Drawn by G. C. K. Dunsterville.

GENERAL DISTRIBUTION: Central America, Greater Antilles, tropical South America.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Eustatius!, St. Kitts, Guadeloupe!, Marie-Galante, Dominica!, Martinque!, St. Lucia!, St. Vincent!, Grenada!.

Jacquiniella teretifolia (Sw.) Britt. & Wils., Sci. Surv. Porto Rico and Virgin Islands 6: 340, 1926. — **Fig. 40.**

Basionym: *Epidendrum teretifolium* Sw., Nov. Gen. & Sp. Pl., Prodr. 121, 1788; Duss in Ann. Inst. Col. Marseille 3: 594, 1897; Cogn. in Urb., Symb. Antill. 6: 481, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 128, 1939.

Syn.: *Cymbidium teretifolium* (Sw.) Sw. in Nov. Act. Soc. Sci. Upsala 6. 72, 1799; Fl. Ind. Occ. 3: 1463, 1804.

Isochilus teretifolius (Sw.) Lindl., Gen. and Sp. Orch. Pl. 112, 1831.

Type: Jamaica, without proper locality. Coll. Swartz s.n.! (BM, UPS).

Epiphytic, caespitose plants up to 30 cm. tall. Rhizome rather slender, abbreviated. Stems approximate, erect or arcuate, somewhat flexuous, leafy. Leaves commonly deciduous, terete, obtuse, up to 5 cm. long. Inflorescence terminal, 1-flowered. Flowers fleshy, yellow-green, ringent. Sepals more or less similar, linear-lanceolate, concave to navicular with thickened apex, acuminate, up to 12 mm. long. Petals linear-subspathulate, concave, with a thickened cushion-like apex, up to 6 mm. long. Lip somewhat adnate to base of column, sublobate to linear-ligulate with more or less erect sides, thickened, cushion-like at apex, acute, up to 6 mm. long. Column short, basally shortly adnate to lip, up to 4 mm. long. Ovary subsessile, not visibly cuniculate.

Flowers from May to August.

GENERAL DISTRIBUTION: Central America, Greater Antilles, Venezuela, Colombia.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

EPIDENDRUM Linnaeus

Epidendrum L., Sp. Pl., ed. 2, 2: 1347, 1763, not Linnaeus, Sp. Pl., ed. 1, 2: 952, 1753.

Sepals and petals free, ringent, spreading or reflexed. Lip conspicuous, either free from, or variously adnate to, column, entire or variously lobed and dissected, with or without any calli on disc. Column fleshy, cylindric, free or variously adnate to claw of lip, without a basal foot. Anther terminal, operculate, incumbent. Pollinia 4, equal, compressed, waxy, held together and attached to rostellum by a viscidium. Stigmata 2, confluent under rostellum. Rostellum transverse. Ovary cylindric.

Epiphytic or lithophytic plants, exceedingly variable in both habit and

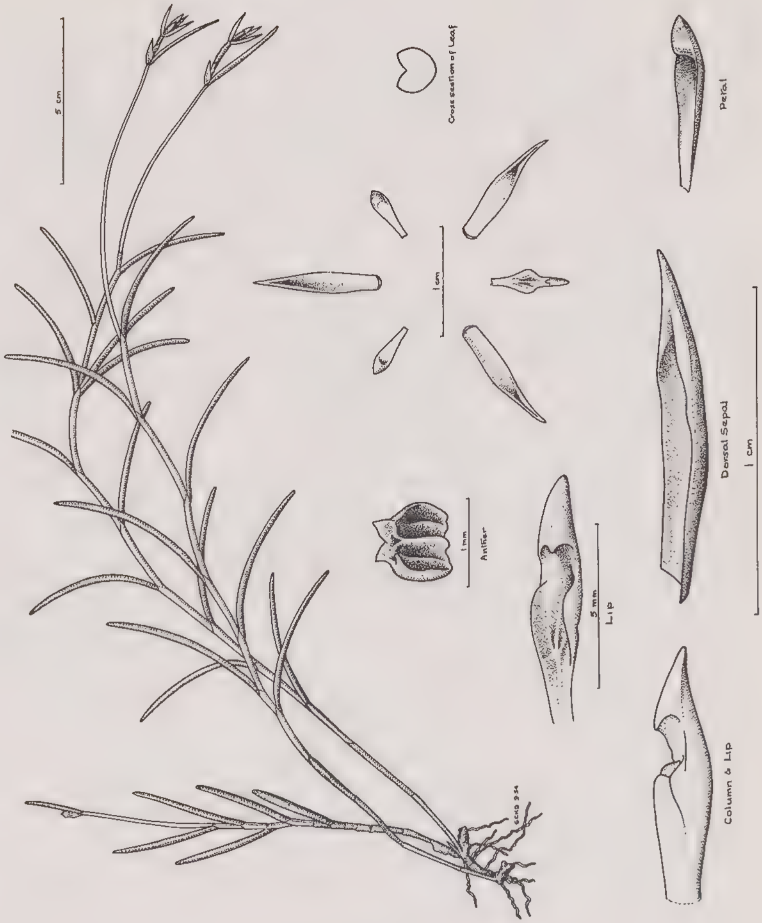


FIGURE 40. *Jacquiniella teretifolia* (Sw.) Britt & Wils.
Drawn by G. C. K. Dunsterville.

flower structure. Primary stem or rhizome, either well-developed or wanting. Secondary stem erect, ascending, rarely pendent, often pseudobulbous. Leaves one to many, fleshy, occasionally leathery or coriaceous, alternate, distichous or imbricate, entire, conduplicate, rarely terete or equitant. Inflorescence normally terminal, occasionally axillary or lateral, capitate, racemose, paniculate, or reduced to a single flower. Flowers fleshy, from minute to showy, variously colored.

LECTOTYPE: *Epidendrum nocturnum* Jacq. [Sprague, Prop. Brit. Bot. 53, 1929].

A neotropical genus with over 1,000 species.

KEY TO SPECIES

1. Stem modified into a distinct pseudobulb 2
1a. Stem more or less cane-like, never pseudobulbous 5
2. Leaves with distinctly serrate edges; lip bilobed in front; disc with a large shield-like callus . . . . . *E. Kraenzlinii*
2a. Leaves with entire edges; lip never bilobed in front; disc bicallose or with a folded, sulcate callus 3
3. Bracts large, glumaceous; lip 3-lobed with finely lacerate-fimbriate lateral lobes . . . . . *E. ciliare*
3a. Bracts small, slender; lip entire 4
4. Pseudobulbs 2-leaved; sepals and petals reflexed; lip cochleate, apiculate in front . . . . . *E. cochleatum*
4a. Pseudobulbs 1-leaved; sepals and petals spreading; lip concave, cuspidate in front . . . . . *E. fragrans*
5. Ovary sessile, completely enclosed by large glumaceous or laterally compressed bracts 6
5a. Ovaries more or less distinctly pedicellate; bracts never glumaceous or laterally compressed 11
6. Plants with erect, unbranched flowering stems; bracts carinate, laterally compressed; ovary not cuniculate 7
6a. Plants with randomly branching, flowering stems; bracts glumaceous, navicular; ovary cuniculate 9
7. Entire plant minute, commonly less than 10 cm. tall; leaves linear-filiform; sepals up to 3.5 mm. long . . . . . *E. miserrimum*
7a. Entire plant much larger, commonly more than 15 cm. tall; leaves never linear-filiform; sepals at least 5 mm. or more long 8
8. Leaf-sheaths smooth; inflorescence racemose, erect, unbranched with subimbricate bracts; lip ovate to suborbicular, flat . . . . . *E. rigidum*
8a. Leaf-sheaths rugose; inflorescence racemose or paniculate, pendulous, rarely suberect with remote bracts; lip cochleate-cymbiform with a small midlobe . . . . . *E. dendrobioides*
9. Inflorescence cone-like, with densely imbricating bracts; leaves densely distichous at right angle to stem . . . . . *E. strobiliferum*
9a. Inflorescence with a loose rachis; bracts not imbricate; leaves remote at an acute angle with stem 10
10. Leaves linear-oblong; sepals and petals spreading; lip cordate-triangular . . . . . *E. ramosum*

10a. Leaves ovate-lanceolate to lanceolate-elliptic; sepals and petals ringent; lip subcordate-ovate .... *E. pseudoramosum*

11. Plants straggly, composed of short, thin, superimposed stems or sympodia 12

11a. Plants erect or pendent, normally composed of a single, well-developed stem or sympodium 14

12. Leaves elliptic to oblong-elliptic; flowers with 16 mm.-long sepals; lip with a retuse, complicate lip .... *E. jamaicense*

12a. Leaves oblong-lanceolate; flowers with 8 mm.- or less-long sepals; lip without a complicate tip 13

13. Inflorescence erect, paniculate; sepals up to 3 mm. long; lip suborbicular with erose-denticulate margins .... *E. vincentinum*

13a. Inflorescence pendent, racemose; sepals up to 8 mm. long; lip reniform, bilobed with entire margin .... *E. Lechleri*

14. Inflorescence sessile; peduncle hardly developed; flowers in an umbel-like, compact raceme or reduced to one 15

14a. Inflorescence with a distinct peduncle; flowers in a raceme or panicle 17

15. Flowers many, in an umbel-like raceme; lip entire or at most sublobate, wider than long .... *E. difforme*

15a. Flowers commonly one, rarely two, produced in succession; lip deeply 3-lobed, longer than wide 16

16. Stem uniform thickness throughout, somewhat compressed; leaves linear-oblong to oblong-ligulate; sepals up to 3 cm. long; pedicellate ovary up to 6 cm. long .... *E. nocturnum*

16a. Stem terete below, wider and ancipitous above; leaves broadly elliptic to suborbicular; sepals up to 6 cm. long pedicellate ovary up to 15 cm. long .... *E. latifolium*

17. Peduncle much elongated, completely enclosed by more or less imbricating, scarious sheaths; raceme more or less subglobose 18

17a. Peduncle naked or at most remotely few-sheathed or -bracteate; raceme or panicle never subglobose 20

18. Stems ancipitous; sheaths on peduncle carinate; flowers small, fleshy; lip with entire margins .... *E. secundum*

18a. Stems terete; sheaths on peduncle not carinate; flowers larger, membranaceous; lip with lacerate-denticulate margins 19

19. Disc of lip with two semiglobose calli at base and an elevated keel between them extending more or less to the junction of midlobe and lateral lobes .... *E. ibaguense*

19a. Disc of lip with a more or less 3-lobed, variously sculptured, often tuberculate callus .... *E. elongatum*

20. Peduncle short, terete, up to 5 cm. long, surrounded by 1 to 4 lanceolate. basally imbricate, laterally compressed spathes 21

20a. Peduncle elongate, ancipitous, at least 10 cm. long, basally naked 22

21. Inflorescence racemose; sepals 2 cm. long; lip 3-lobed, suborbicular to reniform; midlobe as long as the lateral lobes; disc bicallose at base with a long median keel .... *E. discoidale*

21a. Inflorescence racemose or subpaniculate; sepals 1.5 cm. long; lip 3-lobed; midlobe longer than lateral lobes; disc pluritubercülate at base with 3 additional tubercles in front of them .... *E. Mutelianum*

22. Sepals elliptic; petals broadly ovate-rhombic, much wider than sepals; lip 3-lobed; midlobe linear-oblong with prominent diverging apical lobules;

disc in addition to lateral callosities, provided with a median keel .... *E. patens*

22a. Sepals lanceolate to linear-oblanceolate; petals linear-oblanceolate, much narrower than sepals; lip 3-lobed, midlobe subquadrate without apical lobules; disc without a median keel .... *E. pallidiflorum*

Epidendrum ciliare L., Syst. Nat., ed. 10, 2: 1246, 1759, based on *Helleborine graminea, foliis rigidis, carinatis*, Plum. Cat. 9, 1703, and Icon, Burm. 174, t. 179, f. 2, 1759; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 590, 1897; Boldingh, Fl. St. Eustat., Saba and St. Martin 42, 1909; Cogn. in Urb. Symb. Antill. 6: 506, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 130, 1939; Questal, Fl. St. Bartholomew 92, 1941; Hodge in Lloydia 17: 201, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 387, 1956; Gooding, Loveless & Proctor, Fl. Barbados 112, 1965. — **Fig. 41.**

Type: Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Syn.: *Epidendrum cuspidatum* Lodd., Bot. Cab. 1: t. 10, 1817.
Epidendrum ciliare var. cuspidatum (Lodd.) Lindl., Folia Orch. Epidendrum 30, 1853; Cogn. in Urb., Symb. Antill. 6: 507, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 131, 1939.
Type: Dominica, without proper locality. Introduced and cultivated by Loddiges s.n. No specimen preserved. The plate in the Botanical Cabinet is the type!

Epiphytic or lithophytic plants with stout rhizomes. Stems loosely approximate, erect, pseudobulbous, fusiform, slightly compressed, enclosed by chartaceous sheaths, 1- to 2-leaved at apex, basally stipitate, up to 15 cm. long. Leaves coriaceous, elliptic to ovate-elliptic, rarely oblong-elliptic, obtuse to rounded at apex, sessile, conduplicate at base, up to 20 cm. long and 7 cm. wide, commonly smaller. Inflorescence terminal, erect to arcuate, commonly much surpassing the subtending leaves, up to 30 cm. long; peduncle short, commonly enclosed by one to several, distichously arranged, laterally compressed, glumaceous, bract-like imbricating sheaths, loosely racemose above; rachis more or less flexuous. Bracts prominent, glumaceous, very variable in length, shorter than pedicellate ovaries. Flowers very variable in size, fragrant, pale green, occasionally with pinkish hue, lip white. Sepals and petals similar, spreading, linear-lanceolate, acuminate, with more or less revolute margins, up to 7 cm. long, commonly shorter. Lip adnate to column, free part deeply 3-lobed; lateral lobes linear to semi-ovate, with entire margins facing midlobe, external margin finely fibriate-lacerate; midlobe linear-filiform to subulate, entire, as long as or much surpassing the length of the lateral lobes; disc with a pair of calli at base; whole lip to tip of midlobe up to 4 cm. long. Column suberect, rather slender, towards apex suddenly expanded, urceolate, up to 2.5 cm. long. Pedicellate ovary up to 7 cm. long.

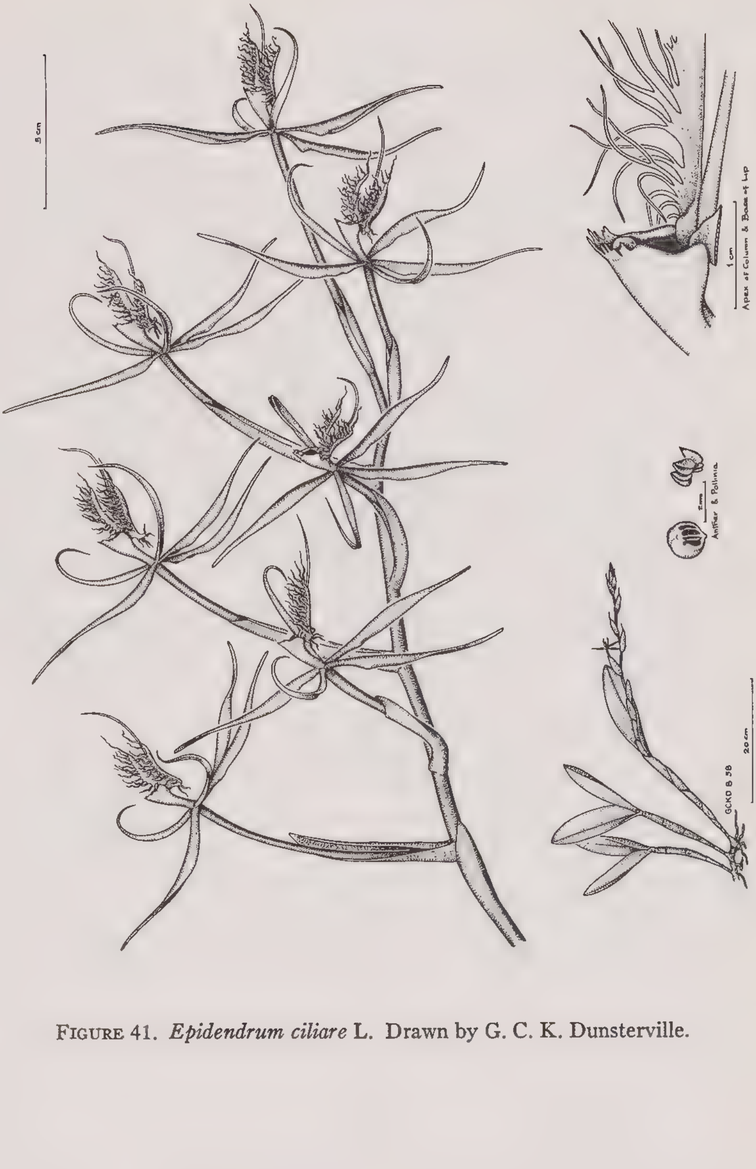


FIGURE 41. *Epidendrum ciliare* L. Drawn by G. C. K. Dunsterville.

Flowers more or less throughout the year.

General Distribution: Tropical America.

Distribution in Lesser Antilles: St. Martin!, St. Barts!, Saba!, St. Eustatius!, Nevis, Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Bequia!, Barbados, Canouan!, Union!, Grenada!.

Epidendrum cochleatum L., Sp. Pl., ed. 2, 2: 1351, 1763, based on *Helleborine cochleato flore*, Plum. Cat. 9, 1703, and Icon. Burm. 180, t. 185, f. 2, 1759; Cogn. in Urb., Symb. Antill. 6:508, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 132, 1939; Hodge in Lloydia 17:203, 1954. — **Fig. 42.**

Lectotype: Haiti, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Epiphytic or lithophytic, caespitose plants with a short, stout rhizome, up to 40 cm. tall. Stem approximate, erect, modified into a distinct fusiform to pyriform pseudobulb, shortly stipitate below, 2-leaved at apex, up to 14 cm. tall. Leaves oblong-lanceolate, acute, up to 25 cm. long and 4 cm. wide. Inflorescence terminal; peduncle enclosed in a single inflated scarious spathe, loosely racemose above. Flowers very variable, showy. Sepals and petals similar in shape, reflexed, linear-lanceolate, subacuminate; sepals up to 4 cm. long; petals up to 3 cm. long. Lip adnate to middle of column, in natural position cochleate, broadly cordate-triangular in outline, distinctly apiculate in front; disc at base provided with a sulcate-ligulate callus. Pedicellate ovary triquetrous, winged, up to 3 cm. long.

Flowers more or less throughout the year.

General Distribution: Florida, Central America, Greater Antilles, northern South America.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!.

Observation: Our description is based on a single collection from each of the reported islands. We believe that these collections represent plants which have escaped from cultivation and seriously doubt that this species is indigenous to the Lesser Antilles.

Epidendrum dendrobioides Thunb., Pl. Brasil. 2: 17, 1818. — **Fig. 43.**

Type: Brasil, Villa Rica. Coll. Freyreys s.n.! in Herb. Thunberg no. 21532 (UPS).

Syn.: *Epidendrum durum* Lindl. in Hook., Journ. Bot. 3: 87, 1840; Stehlé, Fl. Descr. Antill. Fr. 1: 160, 1939; Hodge in Lloydia 17: 207, 1954.
Lectotype: Guyana, without proper locality. Coll. Schomburgk s.n.! (K–L).

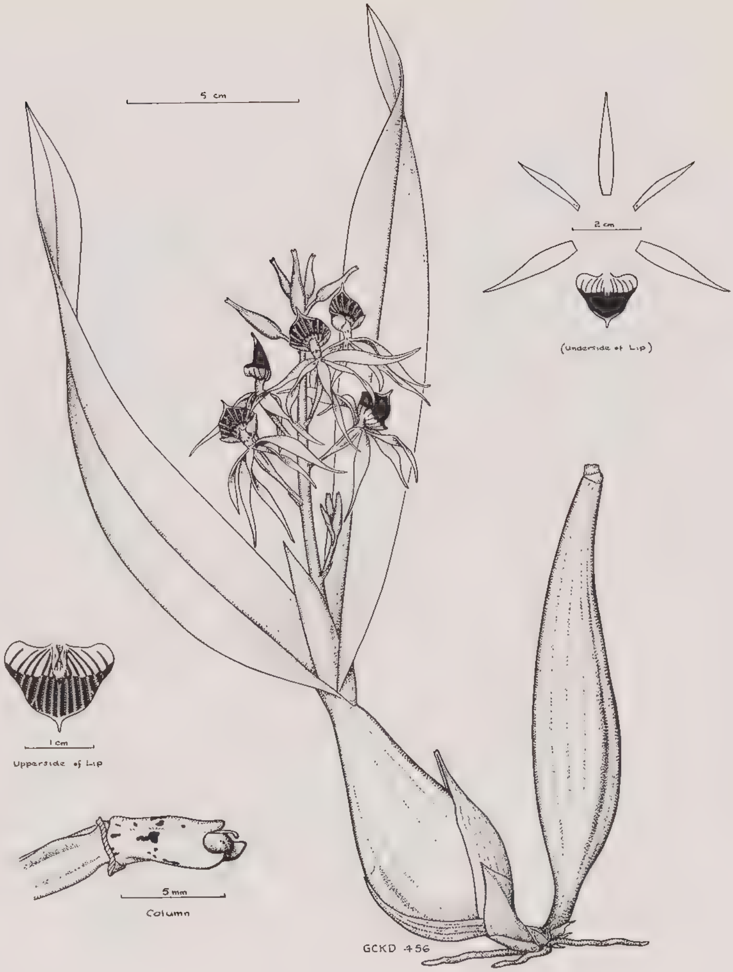


FIGURE 42. *Epidendrum cochleatum* L. Drawn by G. C. K. Dunsterville.

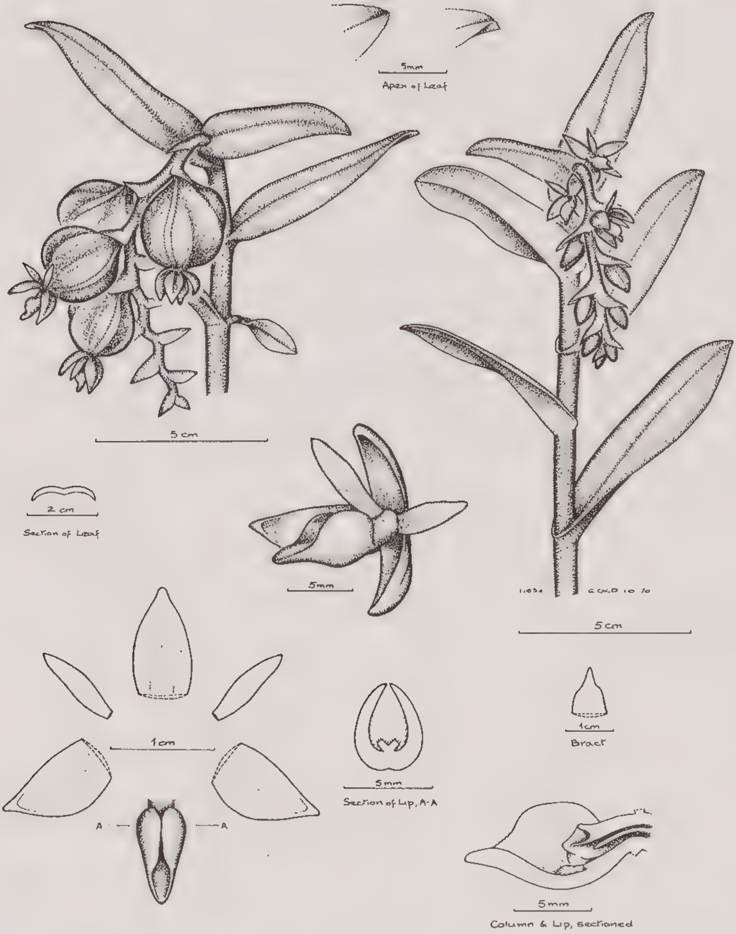


FIGURE 43. *Epidendrum dendrobioides* Thunb. Drawn by G. C. K. Dunsterville.

Epidendrum carnosum Lindl. in Hook., Journ. Bot. 3: 87, 1840; Stehlé, Fl. Descr. Antill. Fr. 1: 161, 1939.
Lectotype: Brasil, near Itambe. Coll. Pohl s.n.! (K–L).

Epidendrum Urbanianum Cogn. in Urb., Symb. Antill. 6: 531, 1910.
Lectotype: Guadeloupe, Savane aux Ananas. Coll. Duss no. 3359! (BR).

Epiphytic or lithophytic, erect plants, up to 50 cm. tall. Stems rather robust, with axillary sympodia, completely enclosed by the remnants of rugose leaf-sheaths, only current growth floriferous. Leaves distichous, rigid, coriaceous, narrowly ovate to ovate-elliptic to ovate-lanceolate, acute or obtuse, up to 8 cm. long and 2.5 cm. wide, commonly much smaller. Inflorescence suberect to pendent, sessile, racemose or subpaniculate. Rachis more or less fractiflex. Bracts triangular-ovate, acuminate, laterally compressed, up to 12 mm. long. Flowers green, very fleshy. Sepals more or less similar, oblong-elliptic, concave, obtuse, up to 10 mm. long; lateral sepals somewhat oblique. Petals linear to linear-lanceolate, acute, up to 9 mm. long. Lip adnate to column, very fleshy, cochleate-cymbiform, with erect sides, cordate in outline with a small terminal lobe; disc at base provided with a bilobed callus; whole lip up to 10 mm. long. Ovary sessile, much shorter than the bracts.

Flowers from January to June.

GENERAL DISTRIBUTION: Greater Antilles, tropical South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

Epidendrum difforme Jacq., Enum. Syst. Pl. 29, 1760; Select. Stirp. Amer. Hist. 223, t. 136, 1763; Select. Stirp. Amer. Hist. ed. icon. arch. pict. 108, t. 206, 1781; Duss in Ann. Inst. Col. Marseille 3: 592, 1897; Boldingh, Fl. St. Eustat., Saba and St. Martin 42, 1909; Cogn. in Urb., Symb. Antill. 6: 524, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 145, 1939; Hodge in Lloydia 17: 203, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 387, 1956. — **Fig. 44.**

Syn.: *Epidendrum umbellatum* Sw., Nov. Gen. & Sp. Pl., Prodr. 121, 1788, *nom. illeg.*; Rolfe in Kew Bull. 277, 1893.
Type: Martinique, without proper locality. Coll. Jacquin s.n.! (BM).

Epidendrum latilabre Lindl., as 'latilabrum' in Bot. Reg. 27: Misc. p. 77, no. 163, 1841; Cogn. in Urb., Symb. Antill. 6: 524, 1910.
Type: Brazil, without proper locality. Introduced and cultivated by Loddiges s.n.! (K–L).

Epiphytic, caespitose, very variable in size, up to 40 cm. tall, commonly much smaller. Stems erect, terete below, ancipitous above, leafy. Leaves very variable, elliptic to oblong-elliptic to narrowly ovate and ovate-elliptic, acute or obtuse, sessile, articulate with leaf-sheaths, up to 7 cm. long. Inflorescence terminal, sessile, few- to many-flowered in an umbel-like

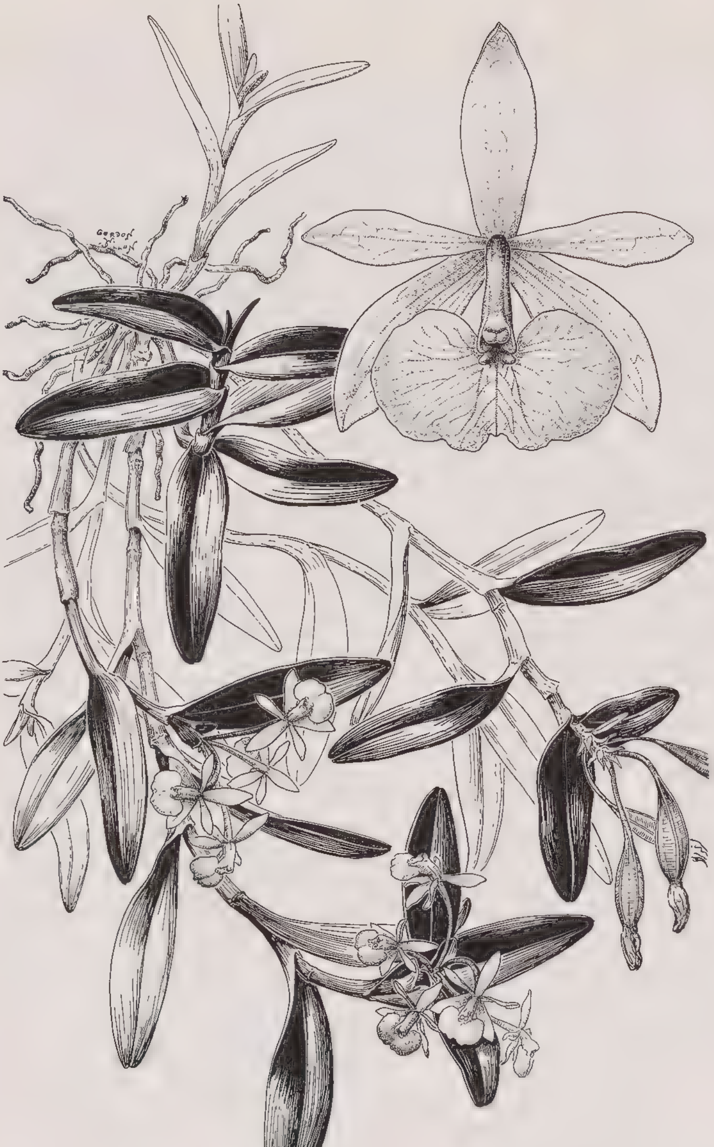


FIGURE 44. *Epidendrum difforme* Jack. 1, plant. 2, flower.
Drawn by G. W. Dillon.

raceme. Bracts short, ovate-lanceolate. Flowers showy, pale green to greenish yellow with spreading segments. Sepals similar, obovate- oblanceolate, acute, up to 2 cm. long, often smaller. Petals linear-oblanceolate, acute, up to 2 cm. long. Lip very variable in outline, entire to sublobate, from a cordate base subrotund to reniform; lateral lobes large, suborbicular; midlobe rather obscure, short, excised in middle, commonly revolute; disc bicallose at base; whole lip up to 2 cm. long and 3 cm. wide. Column somewhat arcuate. Pedicellate ovary up to 4 cm. long.

Flowers more or less throughout the year.

General Distribution: Throughout tropical America.

Distribution in Lesser Antilles: St. Eustatius, St. Kitts, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Epidendrum discoidale Lindl., Folia Orch. Epidendrum 54, no. 169, 1853; Cogn. in Urb., Symb. Antill. 6: 528, 1910; Hodge in Lloydia 17: 205, 1954.

Type: Dominica, without proper locality. Coll. Imray no. 280! (K).

Epiphytic, caespitose plants up to 40 cm. tall. Stems erect, leafy. Leaves elliptic-lanceolate, acute to subacuminate, up to 15 cm. long and 4 cm. wide. Inflorescence terminal, subsessile; peduncle completely enclosed by several laterally compressed herbaceous, dorsally carinate, up to 4 cm.-long spathes, terminated by a short, subdensely, few-flowered raceme. Bracts triangular-lanceolate, up to 6 mm. long. Flowers fleshy, ringent. Sepals oblong-elliptic, acute to obtuse, up to 2 cm. long. Petals linear-subspathulate, more or less canaliculate, up to 1.8 cm. long. Lip adnate to column, from a cordate base suborbicular to reniform, 3-lobed in front; lateral lobes round; midlobe as long as lateral lobes, narrowly quadrate with a truncate, slightly retuse apex; disc bicallose at base with a distinct elevated median keel extending full length of the lip; whole lip up to 1 cm. long. Pedicellate ovary up to 3 cm. long.

Flowers in February.

General Distribution: Endemic in the Lesser Antilles.

Distribution in Lesser Antilles: Dominica!.

Observation: We have seen only the type specimen of this species.

Epidendrum elongatum Jacq., Coll. 3: 260, 1791; Icon. Pl. Rar. 3: 17, t. 604, 1795; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 591, 1897. — **Fig. 45.**

Type: Venezuela, Caracas. Coll. Jacquin s.n. No material is known to us. Holotype is Jacquin's original illustration of which a reproduction is cited above.

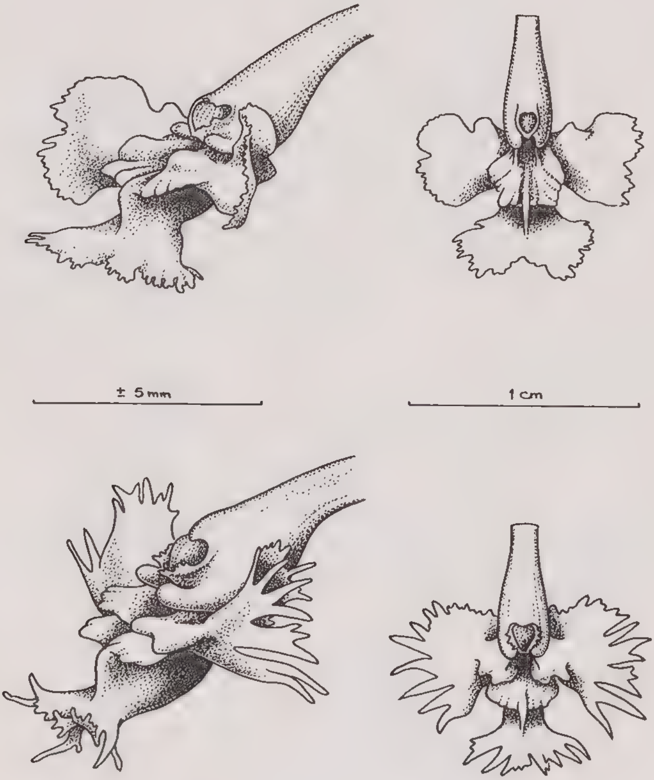


FIGURE 45. *Epidendrum elongatum* Jacq. Variation in lip shapes. Drawn by G. C. K. Dunsterville.

Syn.: *Epidendrum ellipticum* Graham ex Hook., Exot. Fl. 3: t. 207, 1826; Rolfe in Kew Bull. 277, 1893; Cogn. in Urb., Symb. Antill. 6: 520, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 136, 1939.
Type: Brazil, Rio de Janeiro. Coll. Graham s.n.! (K).

Epidendrum crassifolium Lindl., Gen. and Sp. Orch. Pl. 107, 1831.
Type: St. Vincent, without proper locality. Coll. Hooker s.n.! (K–L).

Epidendrum secundum auct. not Jacq. in Enum. Syst. Pl. 29, 1760; Cogn. in Urb., Symb. Antill. 6: 519, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 136, 1939; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956.
Epidendrum sulfuratorium Krause in Beih. Bot. Centralbl. 32, pt. 2: 336, 1914.
Type: West Indies, without proper locality. Introduced and cultivated by Woodford s.n.! (LINN–S).

This species is similar vegetatively to *Epidendrum ibaguense* H.B.K., but may be easily recognised by the 3-lobed complex tubercle in the center of the lip.

Epiphytic, commonly lithophytic, erect, stout plants, up to over 1 meter tall. Stems terete, leafy. Leaves fleshy to subcoriaceous, ovate-lanceolate to lanceolate, rarely elliptic to oblong-elliptic, acute to obtuse, rarely rounded, up to 15 cm. long. Inflorescence terminal; peduncle elongate, completely enclosed by appressed, non-carinate imbricating sheaths, terminated by a short compact raceme, globose to subumbellate in appearance. Flowers several to many at a time, produced in succession, variable in color ranging from white through yellow, orange, rose and magenta. Sepals and petals spreading, more or less similar, elliptic to oblong-elliptic or oblong-oblanceolate, acute or subapiculate; sepals up to 15 mm. long; petals up to 13 mm. long. Lip adnate to column, free part 3-lobed; lateral lobes suborbicular in outline, variously lacerate-denticulate; midlobe from a cuneate base flabellate, more or less bilobed in front with lacerate-denticulate margins; disc in front of column occupied by a large variable tuberculate, more or less 3-lobed callus; whole lip up to 13 mm. long. Pedicellate ovary up to 3 cm. long.

Flowers more or less throughout the year.

GENERAL DISTRIBUTION: Central America, Greater Antilles, Trinidad, tropical South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Epidendrum fragrans Sw., Nov. Gen. & Sp. Pl., Prodr. 123, 1788; Cogn. in Urb., Symb. Antill. 6: 570, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 133, 1939; Hodge in Lloydia 17: 203, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956. — **Fig. 46.**

Type: Jamaica, without proper locality. Coll. Swartz s.n.! (BM, S, UPS).

Epiphytic, with stout creeping rhizomes. Stems modified into pseudo-

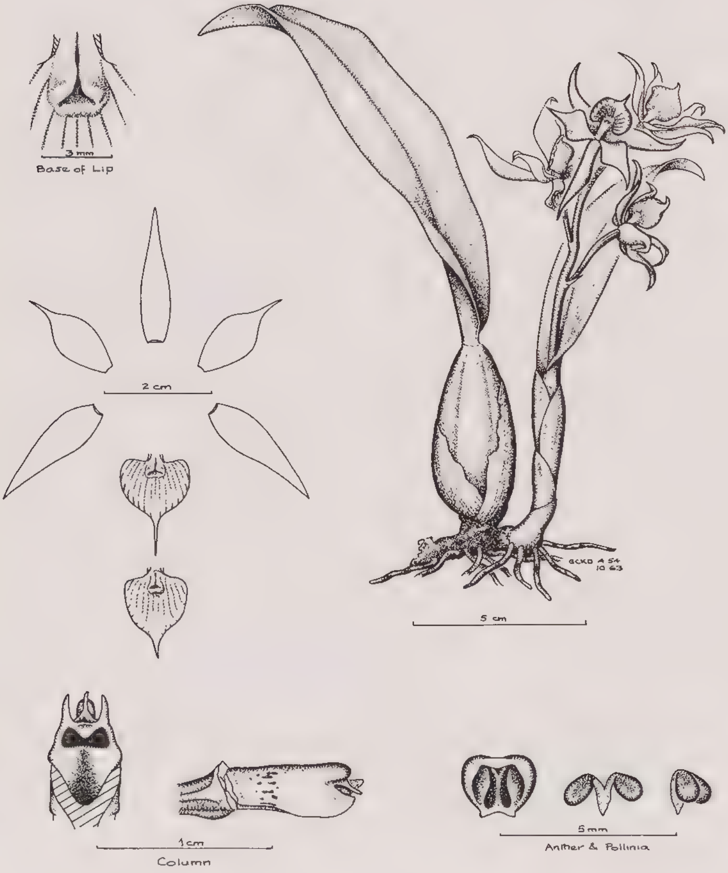


FIGURE 46. *Epidendrum fragrans* Sw. Drawn by G. C. K. Dunsterville.

bulbs, erect or ascending, ovoid to subcylindric, 1-leaved, up to 7 cm. tall. Leaves fleshy, oblong-ligulate to oblong-elliptic, obtuse, basally conduplicate, up to 25 cm. long and 3.5 cm. wide. Inflorescence terminal, from current growth, erect, loosely racemose, few-flowered, shorter than subtending leaf. Flowers fleshy, non-resupinate, pale cream-yellow with purple veins on lip, showy. Sepals lanceolate to ovate-lanceolate, acuminate, up to 2.6 cm. long. Petals ovate-lanceolate to elliptic-lanceolate, long-acuminate, up to 2 cm. long. Lip concave to cochleate, subcordate at base, subrotund in outline with acuminate or cuspidate tip; disc with a folded callus at base; whole lip up to 18 mm. long. Column short, adnate half way to lip, 2-winged above, up to 6 mm. long. Pedicellate ovary up to 1.5 cm. long.

Flowers from November to April.

General Distribution: Central America, Greater Antilles, Trinidad, tropical South America.

Distribution in Lesser Antilles: Dominica, Martinique, St. Vincent!.

Epidendrum ibaguense H.B.K., Nov. Gen. et Sp. Pl. 1: 352, 1816. — **Fig. 47.**

Type: Colombia, Dept. Tolima, Ibague. Coll. Humboldt s.n.! (p).

Syn.: *Epidendrum calanthum* Rchb. f. & Warsc. in Bonpl. 2: 111, 1854; Stehlé, Fl. Descr. Antill. Fr. 1: 137, 1939.
Type: Peru, without proper locality. Coll. Warscewicz s.n.! (w).

Epidendrum calanthum var. *rubrum* Stehlé, Fl. Descr. Antill. Fr. Descr. Antill. Fr. 1: 140, 1939.
Lectotype: Guadeloupe, Rivière Bouteillé. Coll. Stehlé no. 959! (ames, p).

Epidendrum calanthum var. *Revertianum* Stehlé, Fl. Descr. Antill. Fr. 1: 141, 1939.
Lectotype: Guadeloupe, Goyave. Coll. Stehlé no. 2894! (ny).

This species is similar vegetatively to *Epidendrum elongatum* Jacq., but can easily be recognized by the central linear keel on the lip.

Epiphytic or commonly lithophytic, erect to straggling plants, up to over 1 meter tall. Stems terete, leafy. Leaves fleshy to subcoriaceous oblong-ligulate to oblong-elliptic, rarely ovate to ovate-elliptic, acute to obtuse, rarely rounded at apex, basally conduplicate, sessile, articulate with leaf-sheaths, up to 10 cm. long. Inflorescence terminal; peduncle elongate, completely enclosed by appressed, non-carinate, imbricating sheaths, terminated by a short compact raceme, globose or subumbellate in appearance. Flowers several at a time, produced in succession, variable in color — bright magenta, orange-red, scarlet — or commonly white. Sepals and petals spreading, more or less similar, obovate to oblanceolate,

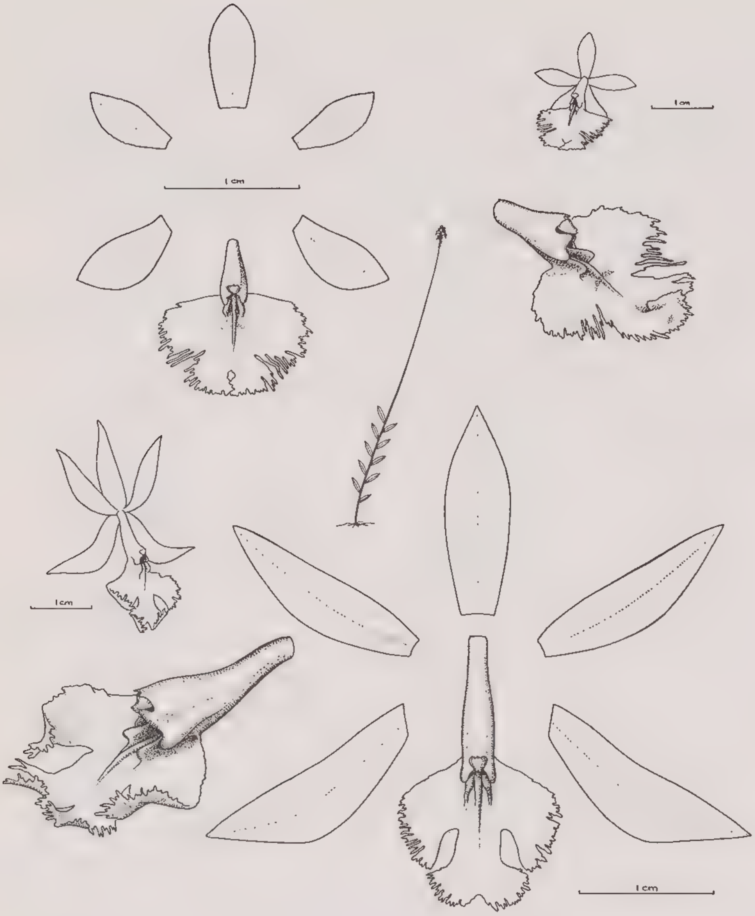


FIGURE 47. *Epidendrum ibaguense* H. B. K. Drawn by G. C. K. Dunsterville.

rarely linear-lanceolate, acute or obtuse; sepals up to 1.5 cm. long; petals up to 1.2 cm. long. Lip adnate to column, free part 3-lobed; lateral lobes subquadrate; midlobe either sessile or with a short claw, cuneate-flabellate, bilobed in front, external margins lacerate-denticulate; disc bicallose at base and in between an elevated central keel extending to junction of midlobe and lateral lobes; whole lip up to 12 mm. long. Pedicellate ovary up to 3 cm. long.

Flowers more or less throughout the year.

General Distribution: Central America, Greater Antilles, Trinidad, northern South America.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

Epidendrum jamaicense Lindl., Folia Orch. Epidendrum 82, no. 256, 1853; Cogn. in Urb., Symb. Antill. 6: 515, 1910; Hodge in Lloydia 17: 203, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956.

Type: Jamaica, Dunrobin Castle. Coll. Purdie s.n.! (K).

Epiphytic, prostrate to pendent, much-branched herbs. Stems superimposed, basally enclosed in tubular sheaths, leafy above, somewhat compressed. Leaves distichous, rather thin, elliptic to oblong-elliptic or elliptic-lanceolate, acute or subacuminate, sessile, up to 12 cm. long. Inflorescence terminal, erect to arcuate, with a short peduncle, racemose above. Bracts linear-lanceolate, acuminte, much shorter than pedicellate ovary. Flowers large, pale green. Dorsal sepal ovate-elliptic to lanceolate-elliptic, acute, up to 16 mm. long; lateral sepals obliquely falcate-ovate-lanceolate, acute, dorsally carinate, up to 17 mm. long. Petals linear-oblanceolate, acute, up to 15 mm. long. Lip entire, adnate to column, subcordate at base, transversely elliptic to subreniform with a complicate obtuse tip, recurved slightly in natural position; disc basally in front of column provided with 2 approximate ovoid calli; whole lip up to 10 mm. long and 16 mm. wide. Pedicellate ovary up to 2.5 cm. long.

Flowers from April to August.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Dominica!, Guadeloupe!.

Observation: Specimens belonging to this species have been reported in the literature from the Lesser Antilles under *Epidendrum corymbosum* Lindl.

Epidendrum Kraenzlinii Bello in Anal. Soc. Esp. Hist. Nat. 12: 116, t. 1, f. 1–3, 1883.

Type: Puerto Rico, Isabela. Coll. Bello s.n. No specimen is known to us. The original illustration is regarded here as the type!

Epiphytic or lithophytic, with a short stout rhizome, up to 50 cm. tall. Stems approximate, thickened into a pyriform pseudobulb, 2-leaved at apex, up to 6 cm. long. Leaves coriaceous, oblong-ligulate to oblong-lanceolate, acute, with more or less serrulate edges, up to 15 cm. long. Inflorescence terminal, erect, long pedunculate; peduncle completely enclosed in grayish appressed imbricating sheaths, racemose to paniculate above. Rachis subflexuous, several-flowered. Flowers rather thin in texture, rose-carmine, several at a time produced in succession. Dorsal sepal obovate to obovate-oblanceolate, obtuse, up to 15 mm. long; lateral sepals elliptic, acute, dorsally carinate towards tip, up to 15 mm. long. Petals spathulate to oblanceolate, rounded, up to 15 mm. long. Lip two-thirds adnate to column, 3-lobed; lateral lobes broadly ovate, concave, dorsal margins adnate to sides of column, rounded at apex, up to 1 cm. long; midlobe from deep sinuses cuneate-flabellate, emarginate to bilobed in front, with each lobe rounded, upper surface provided with 5–7 parallel fleshy ridges along main veins; disc between lateral lobes provided with a large more or less duplicate shield-like callus; whole lip up to 15 mm. long. Column with distinct wings above, up to 8 mm. long. Pedicellate ovary up to 2 cm. long.

Flowers from December to June.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: St. Barts!, St. Martin!, Saba!.

Observation: Both Cogniaux and Stehlé unite this species with *Epidendrum bifidum* Aubl., an entirely different species with larger flowers and a differently proportioned lip.

Specimens referable to this species have also been reported in the literature from the Lesser Antilles under *Epidendrum olivaceum* Cogn. and *E. papilionaceum* Vahl. It should be noted that we have seen a collection ascribed to Martinique which was collected during the last century. Because no other collections have appeared from Martinique since that time, we regard it as having come from a cultivated source.

Epidendrum latifolium (Lindl.) Garay & Sweet in Journ. Arnold Arb. 53: 392, 1972. — **Fig. 48.**

Basionym: *Epidendrum nocturnum* var. *latifolium* Lindl. in Bot. Reg. 23: t. 1961, 1837; Cogn. in Urb., Symb. Antill. 6: 523, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 144, 1939.

Type: West Indies. Introduced and cultivated by Paxton s.n.! (K–L).

Epiphytic or lithophytic plants up to 55 cm. tall. Stem approximate, erect, basally terete and gradually widening and sharply ancipitous, compressed above, bearing up to 4 distichously arranged leaves. Leaves cori-

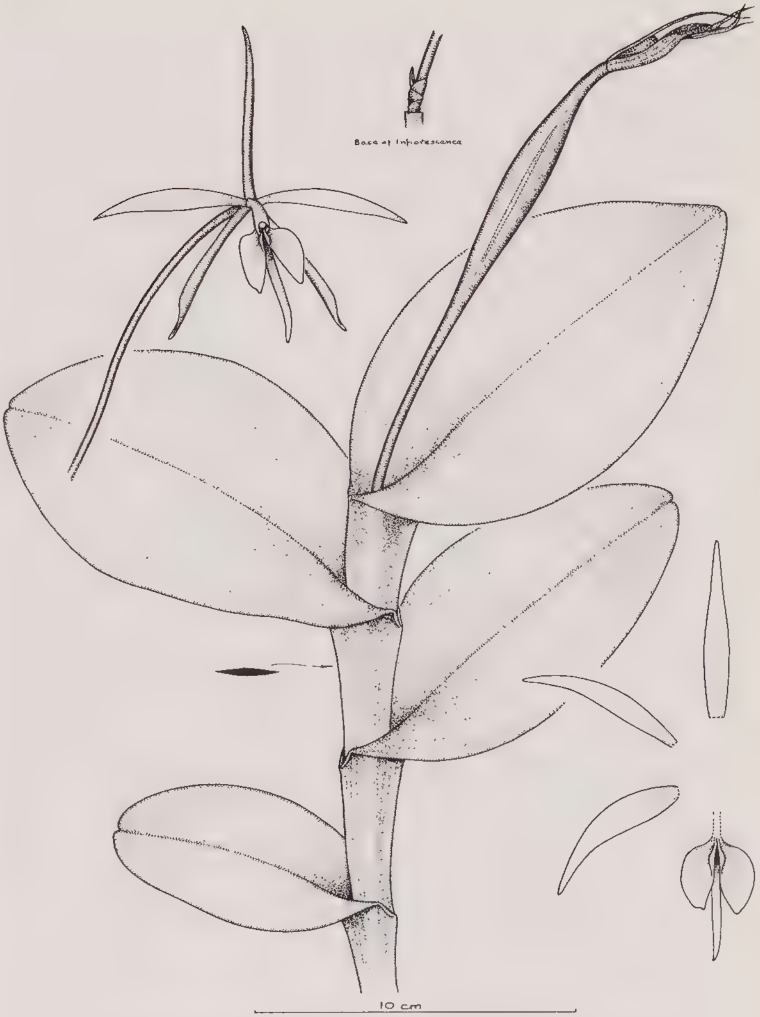


FIGURE 48. *Epidendrum latifolium* (Lindl.) Garay & Sweet.
Drawn by G. C. K. Dunsterville.

aceous, broadly elliptic to suborbicular, obtuse or rounded at apex, conduplicate and enveloping stem at base, up to 14 cm. long and 7 cm. wide. Inflorescence terminal, sessile, 1-flowered. Flowers yellow-green to yellow-brown with white lips, segments spreading. Sepals linear-lanceolate, acuminate, up to 6 cm. long. Petals oblong-linear, acuminate, up to 6 cm. long. Lip adnate to column, free part deeply 3-lobed; lateral lobes obliquely triangular, acute; midlobe linear-filiform; disc bilamellate at base; whole lip up to 5.5 cm. long. Pedicellate ovary up to 15 cm. long.

Flowers from February into April.

General Distribution: Greater Antilles, Trinidad, Venezuela.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, St. Lucia!, St. Vincent!, Grenada!.

Observation: The strongly ancipitous stem, the large elliptic leaves, the sessile, 1-flowered inflorescence and the twice as large flowers show no intergradation with *Epidendrum nocturnum*.

Epidendrum Lechleri Rchb. f. in Linnaea 41: 38, 1876. — **Fig. 49.**

Type: Peru, Sabina. Coll. Lechler no. 2540! Herb. Reichenbach no. 52193 (w).

Epiphytes with superimposed stems, pendent. Stems covered with tubular sheaths below, somewhat compressed above and distichously leaved. Leaves oblong-lanceolate to narrowly elliptic, acute to subacuminate, up to 6 cm. long, commonly shorter. Inflorescence terminal, arcuate to pendent, several-flowered, shorter than subtending leaves. Bracts distichous, triangular, acuminate, much shorter than the pedicellate ovaries. Flowers rather small, yellow with lavender suffusion, lip with lavender veining. Dorsal sepal elliptic to obovate-elliptic, acute, up to 8 mm. long; later sepals similar, acute, oblique, up to 8 mm. long. Petals linear-oblanceolate, obtuse to rounded, up to 7 mm. long. Lip adnate to column, reniform, retuse-bilobed in front, subcordate at base; disc bicallose in front of column with an elevated ridge extending full length in center. Pedicellate ovary up to 1.5 cm. long.

Flowers during March.

General Distribution: Central America, Greater Antilles, Venezuela, Colombia, Ecuador, Peru, Bolivia.

Distribution in Lesser Antilles: Grenada: Annandale, St. George's Mt. Coll. Broadway s.n.! (ames), Grand Etang. Coll. Cameron s.n.! (ames).

Observation: Specimens reported from Grenada in the literature under *Epidendrum jamaicense* Lindl. belong to this species.

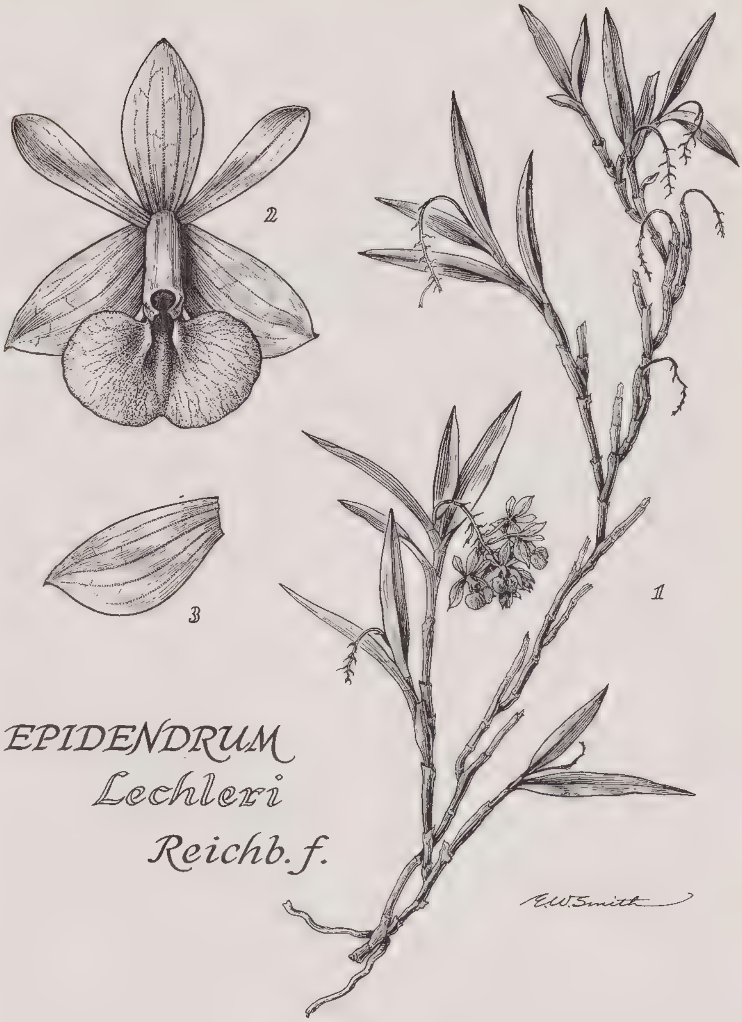


FIGURE 49. *Epidendrum Lechleri* Rchb. f. 1, plant. 2, flower expanded. 3, lateral sepal. Drawn by E. W. Smith.

Epidendrum miserrimum Rchb. f. in Bonpl. 3: 220, 1855; Cogn. in Urb., Symb. Antill. 6: 483, 1910; Hodge in Lloydia 17: 207, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956. — **Fig. 50.**

Syn.: *Jacquiniella miserrima* (Rchb. f.) Stehlé in Bull. Soc. Bot. Fr. 84: 425, 1937; Fl. Descr. Antill. Fr. 1: 172, 1939.

Type: Guadeloupe, without proper locality. Coll. Duchassaing s.n.! (W).

Epiphytic, caespitose, delicate plants, up to 10 cm. tall. Stems approximate, slender, leafy. Leaves linear-filiform, triquetrous, acute to obtuse, up to 2 cm. long. Inflorescence terminal; peduncle filiform, 1- to 2-sheathed, terminated by a loosely few-flowered secund spike. Bracts glumaceous, laterally compressed, as long as or much surpassing the sessile ovaries. Flowers green with maroon suffusion. Sepals similar, oblong-linear to linear-lanceolate, acute to subacuminate, up to 4 mm. long. Petals linear-filiform, acute, up to 3.5 mm. long. Lip adnate to column, from a deltoid base ovate-lanceolate, sublobulate; lateral lobes erect, rounded; midlobe very fleshy, narrowly triangular, subacuminate; whole lip up to 3 mm. long. Capsule sessile, subglobose, erostrate.

Flowers from December to May.

GENERAL DISTRIBUTION: Costa Rica, Haiti, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.

Epidendrum Mutelianum Cogn. in Urb., Symb. Antill. 6: 530, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 150, 1939. — **Fig. 52.**

Basionym: *Epidendrum flavum* Mutel in Mem. Soc. Sci. Lille 151, 1843, not Lindl. 1840.

Type: Guadeloupe, without proper locality. Coll. L'Herminer s.n.! (G, P).

Epiphytic, erect, up to 40 cm. tall. Stems approximate, lower part covered with chartaceous imbricating sheaths, upper part leafy. Leaves subcoriaceous, lanceolate to lanceolate-elliptic, complicate above, sessile, enveloping the stem below, up to 12 cm. long and 3 cm. wide. Inflorescence terminal, suberect, arcuate or arcuately pendent, short pedunculate. Peduncle up to 5 cm. long, racemose or subpaniculate, with 1 or rarely 2, short branches. Flowers rigid, coriaceous, yellow. Sepals similar, obovate to obovate-lanceolate, acute, carinate-mucronate towards tip, up to 15 mm. long; lateral sepals oblique. Petals obovate to obovate-oblanceolate, obtuse, up to 13 mm. long. Lip adnate to column, 3-lobed; lateral lobes obliquely ovate-elliptic, rounded in front; midlobe longer than lateral lobes, cuneate-subquadrate to cuneate-flabellate, subtruncate or emarginate in front; disc bicallose at base in front of column, in front of which there are 3 additional fleshy tubercles; whole lip up to 7 mm. long. Column short, cylindric, dilated above, up to 7 mm. long. Pedicellate ovary up to 2 cm. long.

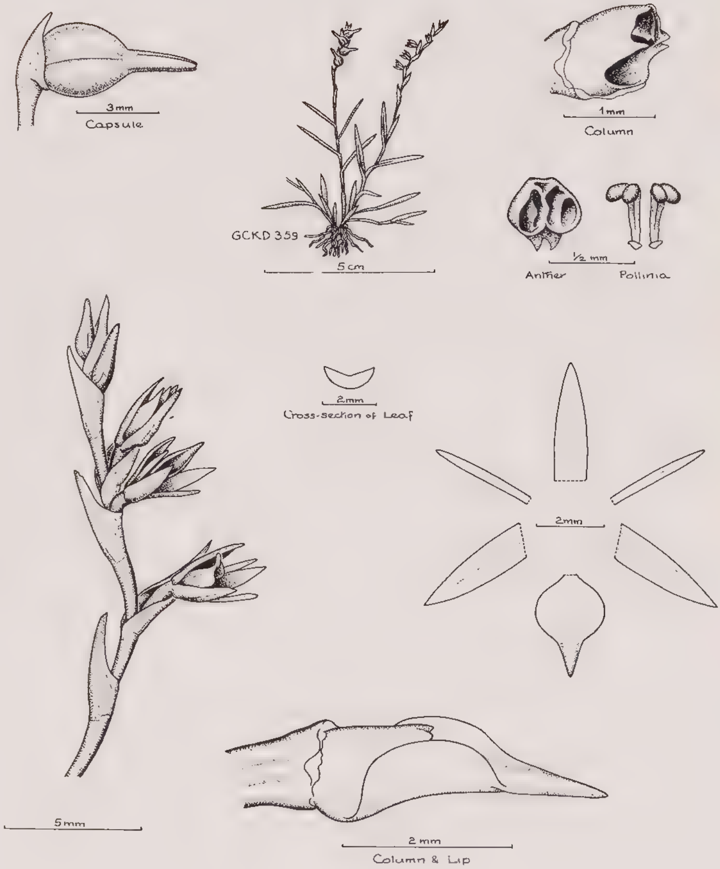


FIGURE 50. *Epidendrum miserrimum* Rchb. f. Drawn by G. C. K. Dunsterville.

Flowers in September.

General Distribution: Endemic in Lesser Antilles.

Distribution in Lesser Antilles: Guadeloupe; Bains Jaunes. Coll. Stehlé no. 1367! (ames, ny), no. 1721! (ames, ny), no. 5818! (ames); chemin de la Cascade du Galion. Coll. L. Rodriguez no. 4529! (p); without proper locality. Coll. Questal no. 1627! (p), Coll. Duss no. 3870! (ames).

Observation: *Epidendrum Mutelianum* Cogn. has generally been confused with *E. patens* Sw. This confusion stems from Cogniaux's original misinterpretation and treatment of this species in his West Indian flora. *Epidendrum Mutelianum* is readily separable from *E. patens* and *E. pallidiflorum* Hook. by the general growth habit with the peduncle shorter than the subtending leaves and by the shape of the petals and lip. It should be noted that Stehlé illustrated *E. Mutelianum* under the name of *E. pallidiflorum* and *E. patens* under *E. Mutelianum*.

Cogniaux cites also specimens from Saba, Martinque and Dominica. We have not seen them and we suspect misdeterminations.

Epidendrum nocturnum Jacq., Enum. Syst. Pl. 29, 1760; Select. Stirp. Amer. Hist. 225, t. 139, 1763; Select. Stirp. Amer. Hist., ed. icon. arch. pict. 109, t. 210, 1781; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 593, 1897; Cogn. in Urb., Symb. Antill. 6: 522, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 143, 1939; Hodge in Lloydia 17: 203, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956. — **Fig. 51.**

Syn.: *Epidendrum nocturnum* var. *angustifolium* Stehlé, Fl. Descr. Antill. Fr. 1: 143, 1939.

Type: Martinique, without proper locality. Coll. Jacquin s.n. No specimen is known to us. Holotype is Jacquin's original illustration of which reproductions are cited above.

Epiphytic, caespitose, stout plants, up to 60 cm. tall, commonly shorter. Stems leafy, compressed, erect, uniform in thickness throughout. Leaves coriaceous, linear-oblong to oblong-ligulate, acute or obtuse, sessile, up to 14 cm. long and 3 cm. wide. Inflorescence terminal, subsessile, racemose, 1- to 2-flowered, up to 2 cm. long. Flowers produced in succession, yellow-green, often with brownish suffusion and with white lips. Sepals linear-lanceolate, long acuminate, up to 3 cm. long. Petals oblong-linear, acuminate, up to 3 cm. long. Lip adnate to column, free portion deeply 3-lobed; lateral lobes obliquely ovate-subfalcate, obtuse, entire, up to 1.5 cm. long; midlobe linear, long acuminate, twice as long as lateral lobes, up to 4 cm. long; disc basally in front of column provided with 2 parallel lamellae. Pedicellate ovary up to 6 cm. long.

Flowers more or less throughout the year.

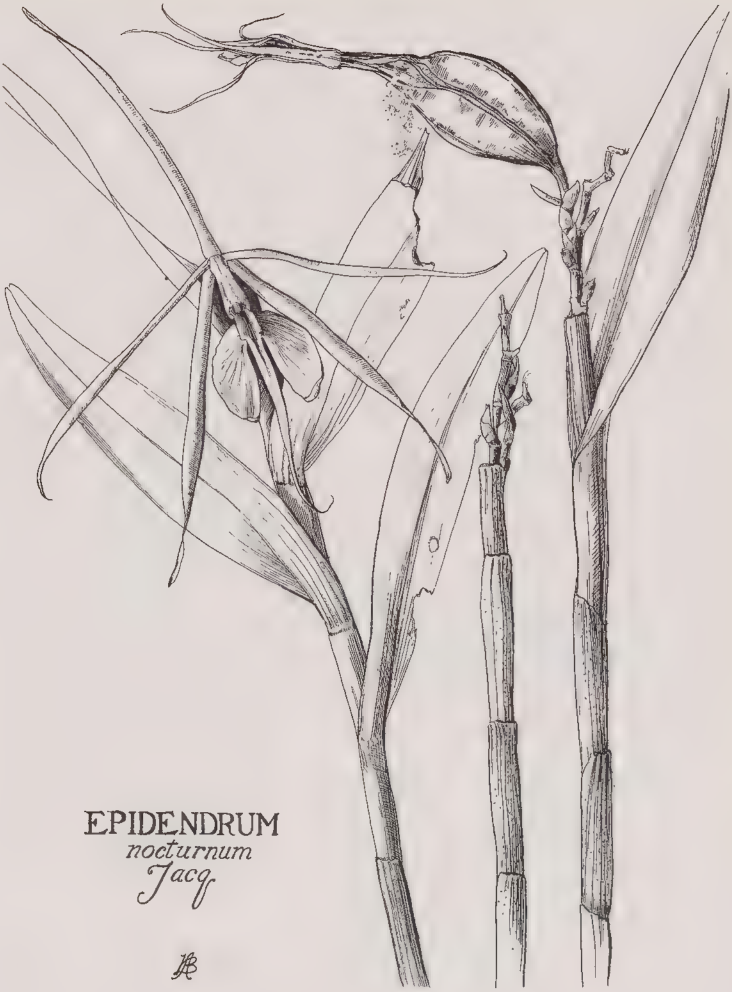


FIGURE 51. *Epidendrum nocturnum* Jacq. Drawn by Blanche Ames Ames.

General Distribution: Tropical America.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

Epidendrum pallidiflorum Hook. in Bot. Mag. 57: t. 2980, 1830; Rolfe in Kew Bull. 277, 1893; Cogn. in Urb., Symb. Antill. 6: 529, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 152, 1939; Hodge in Lloydia 17: 205, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956. — **Fig. 52.**

Type: St. Vincent, without proper locality. Coll. Guilding s.n.! (K).

Epiphytic, caespitose plants up to 40 cm. tall. Stems erect to arcuate, lower part enclosed in imbricating scarious sheaths, upper part leafy. Leaves subcoriaceous, lanceolate to ovate-lanceolate, rarely oblong-lanceolate to oblong-ligulate, acute, up to 11 cm. long. Inflorescence terminal, distinctly pedunculate, terminated in a loosely several-flowered raceme, or rarely with a few branches, hence paniculate. Peduncle compressed, more or less covered by compressed sheaths. Flowers pale yellow to white with purplish spots on column, floral segments spreading. Sepals similar, lanceolate to linear-oblanceolate, acute, up to 2 cm. long; lateral sepals oblique. Petals linear-oblanceolate,acute, much narrower than sepals, up to 2 cm. long. Lip adnate to column, 3-lobed; lateral lobes suborbicular; midlobe subquadrate with incurved sides, emarginate or slightly apiculate in center; disc bicallose at base, in front of which there are 3 fleshy keels along main veins; whole lip up to 1 cm. long and 9 mm. wide. Pedicellate ovary cuniculate, up to 2 cm. long.

Flowers from January to April.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Montserrat!, Dominica!, St. Vincent!, Grenada!.

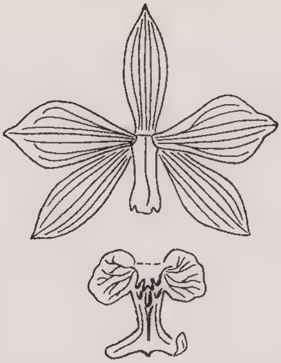
Observation: It should be noted that this species has been confused in the literature with *Epidendrum Mutelianum* Cogn.

Epidendrum patens Sw. in Nov. Act. Soc. Sci. Upsala 6: 68, 1799; Fl. Ind. Occ. 3: 1495, 1804. — **Fig. 52.**

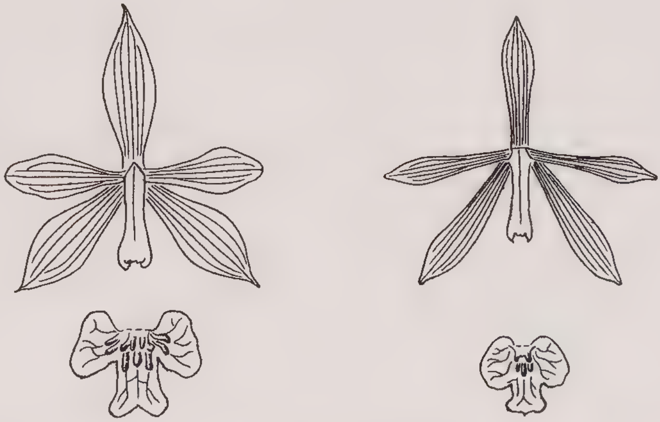
Type: St. Barts, without proper locality. Coll. Fahlberg s.n.! (S, UPS).

Syn.: *Epidendrum Mutelianum* f. *brevifolium* Cogn. ex Stehlé, Fl. Descr. Antill. Fr. 1: 157, 1939, as "f. *brevifolia*".
Type: Guadeloupe, Bois de Matouba. Coll. Duss no. 3360! (AMES).

Epidendrum Mutelianum var. *mirabilis* Stehlé, Fl. Descr. Antill. Fr. 1: 157, 1939.
Type: Martinique, Morne des Deux-Choux. Coll. Stehlé & Kervégant no. 3143! (NY, P).



EPIDENDRUM PATENS SW.



EPIDENDRUM MUTELIANUM COGN.

EPIDENDRUM PALLIDIFLORUM HOOK.

FIGURE 52. Floral parts expanded. Drawn by Magdalena Peña de Sousa.

Epiphytic or lithophytic, robust, erect plants with stout rhizomes, up to 60 cm. tall. Stems erect or ascending, up to 3 cm. apart, rather slender, terete, covered with tubular sheaths for the most part, ancipitous, distichously few-leaved at apex. Leaves rigid, coriaceous, ovate or elliptic to ovate-elliptic, rarely oblong-elliptic, acute or obtuse, up to 12 cm. long and 3.5 cm. wide, commonly much smaller. Inflorescence terminal, paniculate, distinctly long-pedunculate, very rarely abbreviated racemose; peduncle remotely several-sheathed, ancipitous. Flowers fleshy, coriaceous, yellow. Sepals elliptic, acute, up to 15 mm. long. Petals broadly obovate-rhombic, obtuse, up to 14 mm. long, much wider than sepals. Lip adnate to column, distinctly 3-lobed; lateral lobes suborbicular to elliptic, rounded; midlobe linear-oblong, terminated in distinct linear-oblong, diverging lobules, retrorse, i.e., pointing toward center of flower in natural position; disc provided with a 3- to 5-lobed fleshy plate in front of column with 3 additional short, ovoid calli in front, the median one extending in a keel down full length of midlobe; whole lip up to 8 mm. long and 8 mm. wide at base between spread lateral lobes, retrorse lobules up to 3 mm. long. Pedicellate ovary up to 1.5 cm. long.

Flowers more or less throughout the year.

General Distribution: Endemic in Lesser Antilles.

Distribution in Lesser Antilles: St. Barts!, St. Kitts!, Nevis!, Guadeloupe!, Martinique!.

Observation: It has been pointed out under *E. Mutelianum* Cogn. that *E. patens* Sw. has been the source of much misinterpretation. The original confusion goes back to Lindley who misinterpreted Swartz's description and applied it to one of the South American species, namely *E. coronatum* Ruíz & Pav. An examination of Swartz's material in the Thunberg herbarium, however, clearly shows that we are dealing with the plant erroneously called *E. Mutelianum* throughout the literature and was illustrated as such by Stehlé in his flora.

Epidendrum pseudoramosum Schltr. in Fedde Rep. 10: 361, 1912.—Fig. 53.

Type: Guatemala, Coban. Coll. Tuerckheim no. II, 1951! (ames).

Epiphytic, caespitose, erect, somewhat branching plants. Stems leafy, up to 40 cm. tall. Leaves narrowly ovate-lanceolate to lanceolate-elliptic, acute to obtuse, more or less subequally bilobed at apex, articulate with compressed leaf-sheaths at right angle with stem, up to 8 cm. long and 1.4 cm. wide, commonly smaller. Inflorescence terminal, sessile, 1- to 3-flowered, spicate. Rachis fractiflex. Bracts glumaceous, laterally compressed, slightly longer than ovary. Flowers small, rigid, pale green, with prominent nerves, ringent. Dorsal sepal narrowly elliptic, obtuse, up to 7 mm. long. Lateral sepals obliquely elliptic, rounded and subcarinate, rarely

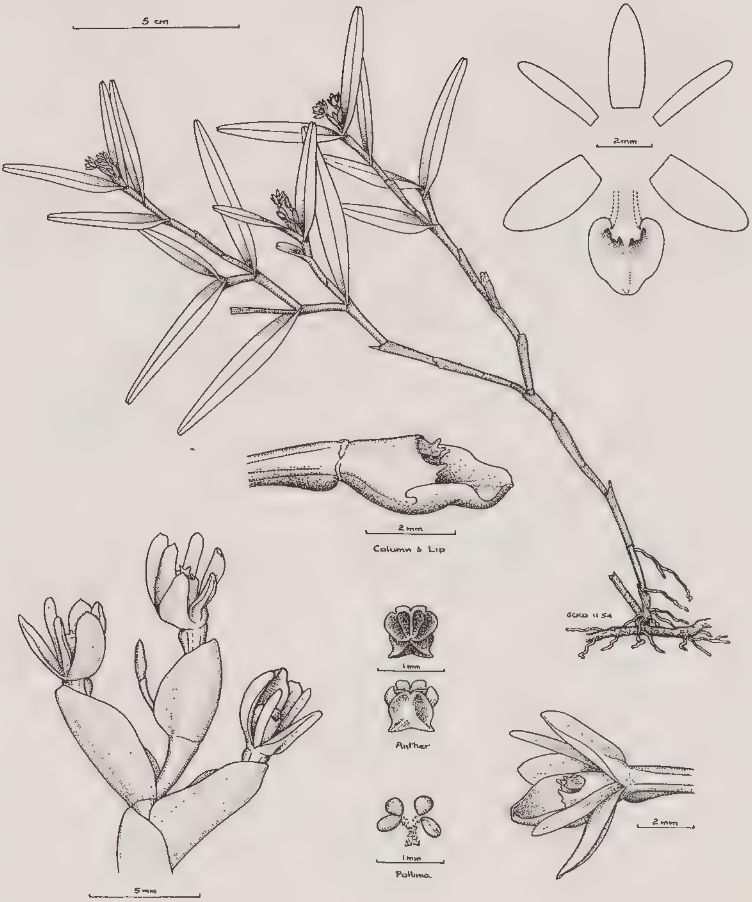


FIGURE 53. *Epidendrum pseudoramosum* Schltr.
Drawn by G. C. K. Dunsterville.

with a prominent denticulate keel at apex, up to 7 mm. long. Petals linear, rounded at apex, up to 6 mm. long. Lip subcordate-ovate, obtuse in front, basally provided with 2 calli and with a median low fleshy ridge, up to 5 mm. long. Column short, adnate to base of lip. Ovary sessile, ovoid, rostrate.

Flowers from September to April.

General Distribution: Central America, Greater Antilles, northern South America.

Distribution in Lesser Antilles: Guadeloupe, Bains Jaunes. Coll. Stehlé no. 1666! (ames). Dominica, Morne Anglaise. Coll. Hodge no. 383! (ames); Diablotin. Coll. Fishlock no. 2! (k); without proper locality. Coll. Imray no. 179! (ames, k). Martinique, without proper locality. Coll. Smith no. 1147! (k). Saba, Rendez-vous. Coll. Suringar s.n.! (l). St. Vincent, without proper locality. Coll. Smith no. 1147! (k).

Observation: The specimen reported by Grisebach from Dominica as *Epidendrum ramosum* var. *lanceolatum* Griseb. is referable to this species.

Epidendrum ramosum Jacq., Enum. Syst. Pl. 29, 1760; Select. Stirp. Amer. Hist. 221, t. 132, 1763; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 592, 1897; Cogn. in Urb., Symb. Antill. 6: 534, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 163, 1939; Hodge in Lloydia 17: 207, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956.— **Fig. 54.**

Syn.: *Epidendrum ramosum* var. *lineare* Stehlé, Fl. Descr. Antill. Fr. 1: 163, 1939.

Type: Martinique, without proper locality. Coll. Jacquin s.n.! (linn–s).

Epiphytic, caespitose, erect, much branched plants, up to 50 cm. or more tall. Stems erect to suberect, occasionally prostrate, leafy. Leaves articulate, with rough appressed leaf-sheaths at acute angle with stem, oblong-ligulate to linear-oblong, with a truncate bilobed apex, up to 9 cm. long and 1 cm. wide, commonly smaller. Inflorescence terminal, filiform, sessile, loosely few-flowered spike. Rachis fractiflex. Bracts glumaceous, cymbiform with prominent nerves, laterally somewhat compressed, as long as or slightly surpassing the sessile ovaries. Flowers pale yellow-green with spreading segments. Dorsal sepal lanceolate to narrowly ovate-lanceolate, acute, up to 7 mm. long. Lateral sepals obliquely ovate-lanceolate, acute, up to 7 mm. long, somewhat wider than dorsal sepal. Petals linear, spreading, acute, up to 6 mm. long. Lip very fleshy, entire, ovate-cordate to cordate-triangular, acute, basally connate with column; disc with a V-shaped callus at base; whole lip up to 5 mm. long. Column short, fleshy, up to 3 mm. long. Fruit subglobose, with a short rostrate apex.

Flowers from September to March.

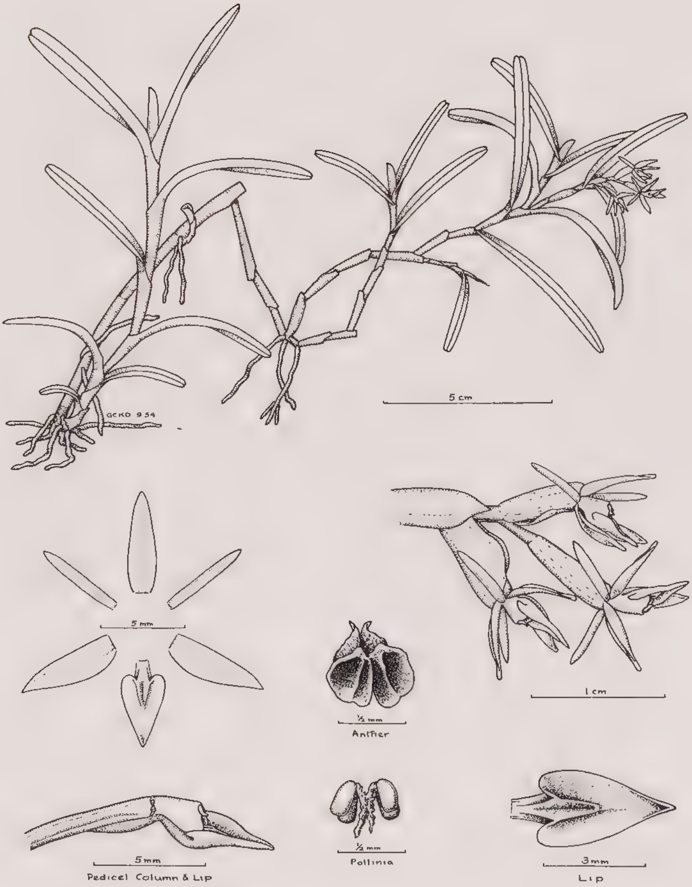


FIGURE 54. *Epidendrum ramosum* Jacq. Drawn by G. C. K. Dunsterville.

General Distribution: Tropical America.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Epidendrum rigidum Jacq., Enum. Syst. Pl. 29, 1760; Select. Stirp. Amer. Hist. 222, t. 134, 1763; Select. Stirp. Amer. Hist., ed. icon. arch. pict. 107, t. 204, 1781; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 591, 1897; Cogn. in Urb., Symb. Antill. 6: 533, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 162, 1939; Hodge in Lloydia 17: 207, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956. — **Fig. 55.**

Type: Martinique, without proper locality. Coll. Jacquin s.n.! (BM).

Epiphytic, rhizomatous plants up to 25 cm. tall. Rhizome scandent or suberect. Stem remote, erect or ascending, laterally compressed, leafy, completely enclosed by leaf-sheaths. Leaves coriaceous, variable in size and shape, elliptic to narrow oblong-elliptic, rarely linear-oblong, obtuse, up to 8 cm. long and 1.5 cm. wide. Inflorescence terminal, compressed, winged, subsessile. Bracts prominent, complanate, broadly ovate, obtuse, distichous, surpassing the subsessile ovary, up to 1.5 cm. long. Flowers yellow or yellow-green, very fleshy and rigid. Sepals concave, ovate to ovate-elliptic, obtuse, up to 7 mm. long. Petals linear, spreading, obtuse, as long as the sepals. Lip adnate to column, entire, subcordate-ovate to subcordate-suborbicular, rounded in front, somewhat retuse; disc bicallose in front of column, up to 5 mm. long. Column short with lacerate clinandrium. Ovary subsessile.

Flowers from September to April.

General Distribution: Throughout the American tropics and subtropics.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Epidendrum secundum Jacq., Enum. Syst. Pl. 29, 1760, based on *Helleborine purpurea umbellata*, Plum. Cat. 9, 1703 and Icon. Burm. 179, t. 184, f. 1, 1759, not Jacq., Select. Stirp. Amer. Hist. 224, t. 137, 1763. — **Fig. 56.**

Syn.: *Epidendrum fuscatum* J. E. Sm., Spicileg. Botan. fasc. 2: 21, t. 23, 1792, *nom. superf.*

Type: Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Epidendrum anceps Jacq., Select. Stirp. Amer. Hist. 224, t. 138, 1763; Select. Stirp. Amer. Hist., ed. icon. arch. pict. 108, t. 208, 1781; Boldingh, Fl. St. Eustat., Saba and St. Martin 41, 1909; Cogn. in Urb., Symb. Antill. 6: 516, 1910; Stehlé, Fl. Descr. Antill. Fr. 1:

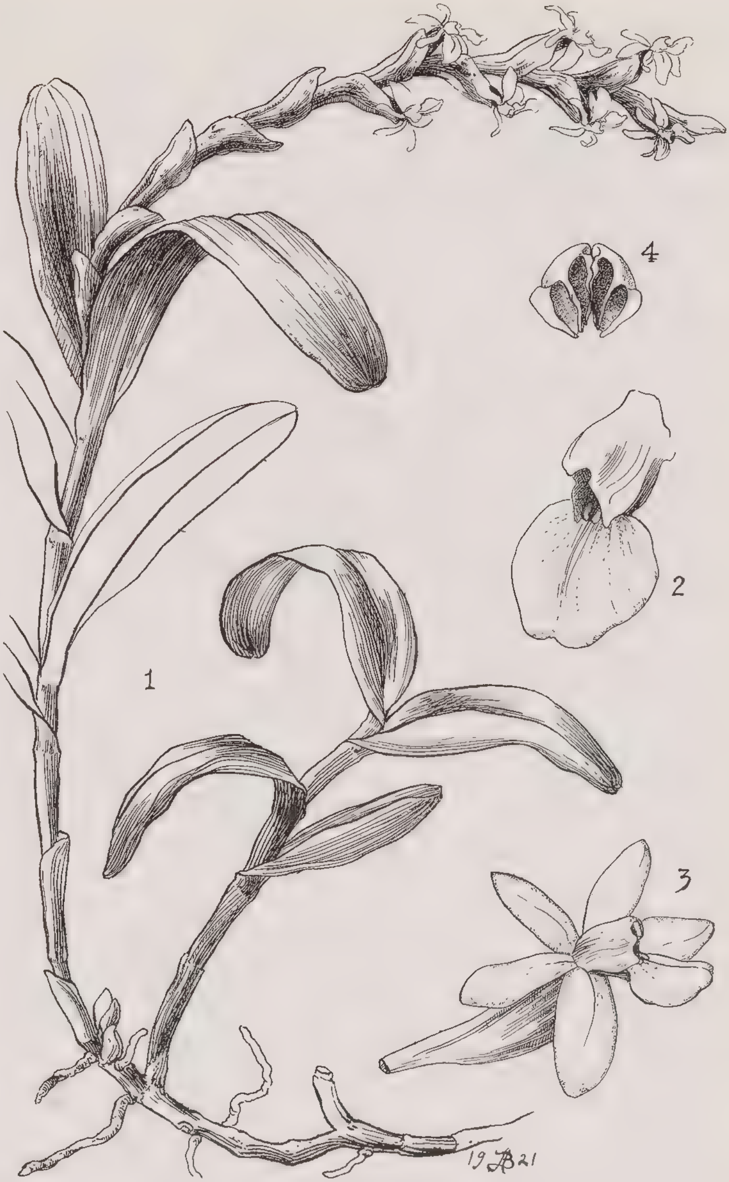


FIGURE 55. *Epidendrum rigidum* Jacq. 1, plant. 2, lip and column. 3, flower. 4, anther. Drawn by Blanche Ames Ames.

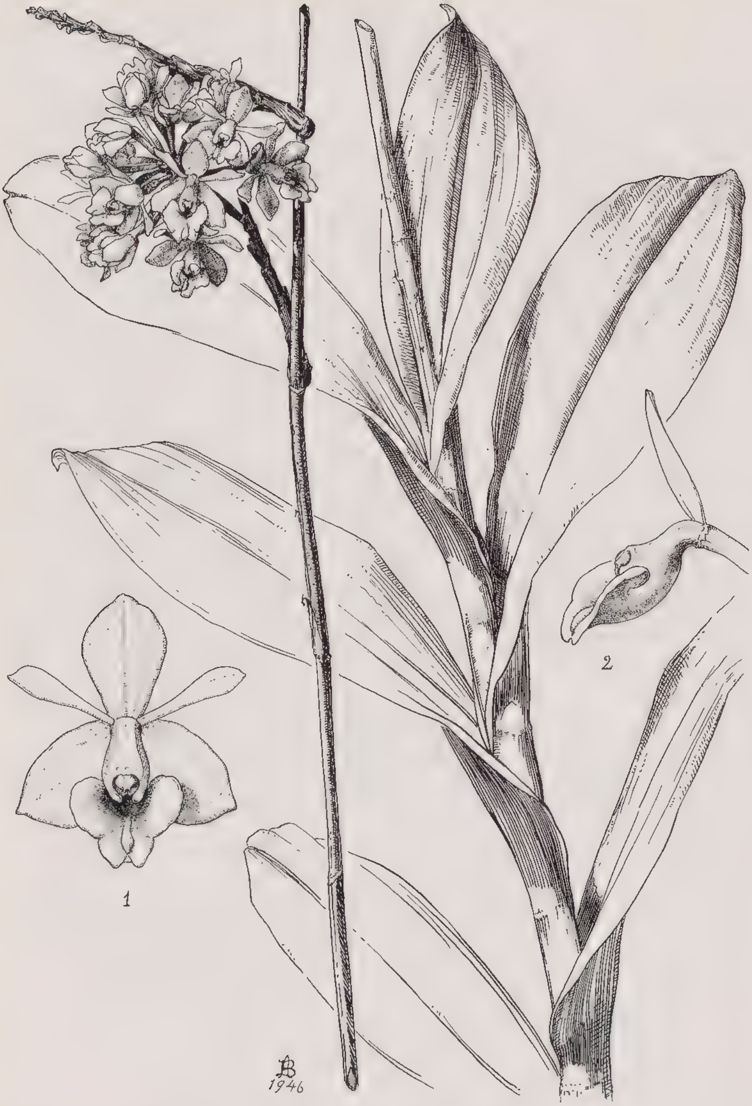


FIGURE 56. *Epidendrum secundum* Jacq. Plant, 1, flower expanded. 2, lip, column and dorsal sepal. Drawn by Blanche Ames Ames.

134, 1939; Hodge in Lloydia 17: 205, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 387, 1956, Gooding, Loveless & Proctor, Fl. Barbados 112, 1965.

Type: Martinique, without proper locality. Coll. Jacquin s.n.! (BM).

Epidendrum viridipurpureum Hook. in Bot. Mag. 65: t. 3666, 1838.
Epidendrum anceps var. *viridipurpureum* (Hook.) Lindl., Folia Orch. Epidendrum 66, 1853; Cogn. in Urb., Symb. Antill. 6: 518, 1910.

Type: Jamaica, without proper locality. Imported and cultivated by Horsfall s.n.! (K).

Epiphytic, caespitose plants up to 60 cm. tall. Stems ancipitous, leafy. Leaves very variable in size and shape, elliptic to oblong-elliptic to narrowly elliptic-lanceolate, up to 15 cm. long and 2.5 cm. wide, commonly much smaller. Inflorescence terminal; peduncle erect, up to 25 cm. long, completely enclosed by ancipitous, carinate sheaths, terminated by a subglobose, many-flowered raceme. Bracts linear-filiform, up to 5 mm. long. Flowers fleshy, yellow-brown to purple-brown, small. Dorsal sepal oblong-obovate, obtuse, up to 8 mm. long. Lateral sepals obliquely oblong-obovate, acute, up to 8 mm. long. Petals linear-filiform, obtuse, up to 7 mm. long. Lip 3-lobed; lateral lobes suborbicular to subtruncate; midlobe subquadrate, recurved and retuse in front; disc fleshy with a median ridge terminating at retuse apex; whole lip up to 7 mm. long. Column short, stout. Pedicellate ovary up to 1 cm. long.

Flowers more or less throughout the year.

GENERAL DISTRIBUTION: Throughout tropical America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua!, Saba, St. Eustatius, Quills, St. Kitts, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados, Grenada!.

OBSERVATION: It should be noted that this species represents the plants commonly known as *Epidendrum anceps* Jacq. The original misrepresentation dates back to Jacquin who misdentified one of his collections with Plumier's plate. This mistake has been followed blindly and copied by all students of orchid systematics.

Epidendrum strobiliferum Rchb. f. in Nederl. Kruidk. Arch. 4: 332, 1858; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 592, 1897; Boldingh, Fl. St. Eustat., Saba and St. Martin 43, 1909; Cogn. in Urb., Symb. Antill. 6: 535, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 167, 1939; Hodge in Lloydia 17: 207, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956. — **Fig. 57.**

Type: Surinam, without proper locality. Coll. Splitgerber no. 426! (W).

Epiphytic, caespitose, much-branched plants, up to 15 cm. tall. Stems erect, more or less flexuous, enclosed by rugulose leaf-sheaths. Leaves, fleshy to rigid, oblong-ovate, obtuse to rounded, sessile, distichous at right

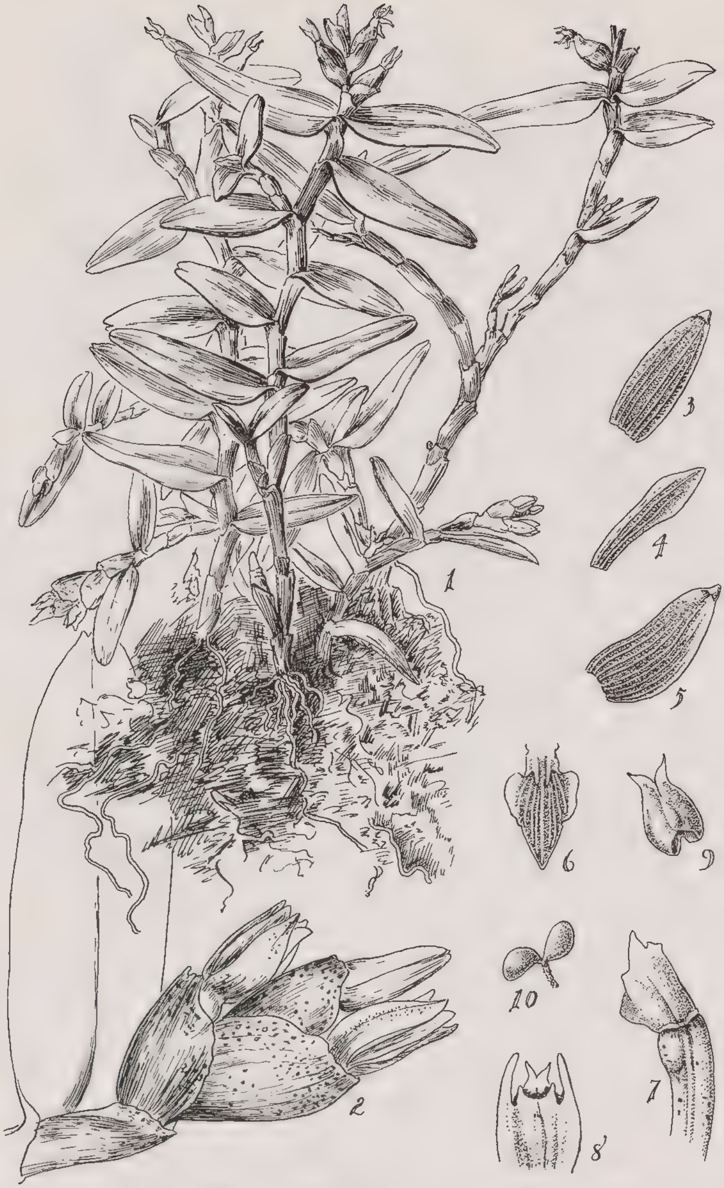


FIGURE 57. *Epidendrum strobiliferum* Rchb. f. 1, plant. 2, inflorescence. 3, dorsal sepal. 4, petal. 5, lateral sepal. 6, lip. 7 and 8, column. 9, anther. 10, pollinia. Redrawn from Blanche Ames Ames by G. W. Dillon.

angle to stem, up to 4 cm. long and 1 cm. wide. Inflorescence terminal, sessile, spicate, cone-like, several-flowered. Bracts glumaceous, distichous, imbricate, as long as or slightly longer than ovaries. Flowers greenish white, occasionally with a reddish suffusion, rigid. Dorsal sepal oblong-elliptic, obtuse, up to 3 mm. long; lateral sepals obliquely ovate to subfalcate, obtuse, up to 3 mm. long. Petals linear to linear-subspathulate, acute, up to 3 mm. long. Lip adnate to column, entire, subcordate to triangular, acute; disc bicallose basally; whole lip up to 2 mm. long. Anther bicornute. Ovary somewhat cuniculate.

Flowers from December to March.

General Distribution: Central America, Greater Antilles, Trinidad, tropical South America.

Distribution in Lesser Antilles: Saba!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

Epidendrum vincentinum Lindl. in Hook., Journ. Bot. 3: 88, 1840; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 593, 1897; Cogn. in Urb., Symb. Antill. 6: 526, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 149, 1939; Hodge in Lloydia 17: 205, 1954.

Type: St. Vincent, without proper locality. Coll. Guilding s.n.! (K).

Epiphytic, erect, slender, branching plants up to 15 cm. tall. Stems erect, often branching, leafy, compressed, completely enclosed by leaf-sheaths. Leaves fleshy, lanceolate to oblong-lanceolate, acute to subacuminate, basally complicate, up to 4 cm. long and 7 mm. wide. Inflorescence terminal, paniculate, with rather slender branches; peduncle short, naked, up to 1.5 cm. long. Bracts ovate-triangular, acute, up to 1 mm. long. Flowers small, pale green to yellowish green. Sepals similar, lanceolate to linear-lanceolate, acute, up to 3 mm. long. Petals filiform, up to 3 mm. long. Lip entire, adnate to column, suborbicular to subreniform with more or less undulate, erose-denticulate margins; disc with a slender, obscure keel in center; whole lip up to 1.5 mm. long.

Flowers from December to June.

General Distribution: Central America, Greater Antilles, Trinidad, Venezuela.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

TETRAMICRA Lindley

Tetramicra Lindl., Gen. and Sp. Orch. Pl. 119, 1831.

Sepals and petals similar, free, spreading. Lip with base of column forming a gibbous nectary, larger than the rest of the floral segments, 3-

lobed, parallel with column. Column erect, distinctly 2-winged with a 3-dentate clinandrium, at base obliquely extended into a short gibbous, cuniculum-like nectary. Anther terminal, operculate, incumbent with longitudinally septate cells. Pollinia 8, unequal in size, four being much smaller or reduced, all connected by four caudicles. Stigmata transverse, confluent under the rostellum.

Epiphytic, rhizomatous plants. Primary stem or rhizome repent. Secondary stems remote, short, non-pseudobulbous, leafy. Leaves fleshy, semiterete, equitant or triquetrous. Inflorescence terminal with a loosely-flowered raceme. Flowers often showy.

TYPE: *Cymbidium rigidum* Willd. [Lindl. Gen. and Sp. Orch. Pl. 119, 1831].

Approximately 10 species native to the West Indies and Florida.

Tetramicra canaliculata (Aubl.) Urb. in Fedde Rep. 15: 306, 1918; Stehlé, Fl. Descr. Antill. Fr. 1: 111, 1939; Questal, Fl. St. Bartholomew 92, 1941.

Basionym: *Limodorum canaliculatum* Aubl., Hist. Pl. Guin. Fr. 2: 821, 1775, based on *Helleborine foliis rigidis, angustis, & canaliculatis*, Plum. Cat. 9, 1703 and Icon. Burm. t. 181, f. 1, 1759.

Syn.: *Cymbidium rigidum* Willd., Sp. Pl. 4: 106, 1805.
Tetramicra rigida (Willd.) Lindl., Gen. and Sp. Orch. Pl. 119, 1831; Cogn. in Urb., Symb. Antill. 6: 547, 1910.
Brassavola rigida (Willd.) Boldingh, Fl. St. Eustat., Saba and St. Martin. 43, 1909.
Type: Haiti, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Cyrtopodium elegans Hamilt., Prodr. Pl. Ind. Occid. 53, 1825.
Brassavola elegans (Hamilt.) Hook. in Bot. Mag. 58: t. 3098, 1831.
Tetramicra elegans (Hamilt.) Cogn. in Urb., Symb. Antill. 6: 548, 1910.
Type: Antigua, Green Castle. Coll. Hamilton s.n. (P).

Bletia subaequalis Rchb. f. in Flora 69: 553, 1886.
Lectotype: Antigua, without proper locality. Coll. Breutel s.n.! (W).

Epiphytic rhizomatous plants, up to 60 cm. tall. Primary stem or rhizome decumbent, repent, wiry, completely enclosed by remnants of imbricating papery sheaths. Secondary stems remote, erect, rather short, distichously 2–4 leaved, up to 2 cm. long. Leaves fleshy, linear-subulate, erect to subfalcate, canaliculate above, up to 18 cm. long. Inflorescence terminal, erect, rather slender; peduncle remotely several-sheathed, loosely racemose above. Flowers rather showy. Sepals and petals greenish with a reddish suffusion, lip rose-red, often with violet striations. Sepals similar, oblong-lanceolate, acute or obtuse, up to 10 mm. long. Petals lanceolate to oblanceolate, rarely subspathulate, up to 10 mm. long. Lip distinctly 3-lobed with deep sinuses; lateral lobes elliptic, rounded at apex; midlobe obovate, rounded or slightly emarginate at apex; whole lip up to 15 mm. long. Column cylindric, winged along entire length. Pedicellate ovary up to 1.5 cm. long.

Flowers from March to June.

General Distribution: Florida, Greater Antilles.

Distribution in Lesser Antilles: St. Barts!, St. Eustatius!, Barbuda!, Antigua!, Guadeloupe!, Martinique!, La Desirada!, Barbados!.

BRASSAVOLA R. Brown

Brassavola R. Br. in Ait., Hort. Kew. ed. 2, 5: 216, 1813.

Sepals and petals more or less similar, free, spreading or reflexed. Lip with a short claw adnate basally to column, free blade more or less envelopes the column. Column short, cylindric, winged in front. Clinandrium 3-lobed with more or less denticulate lobes. Anther terminal, operculate, incumbent, septate. Pollinia 8, compressed in two pairs of four, connected by granulose often plate-like viscidia. Stigmata terminal, confluent under bilobed rostellum.

Epiphytic herbs with short rhizomes. Secondary stem cylindric, enclosed by scarious sheaths, terminated by a single terete or cylindric leaf. Inflorescence either abbreviated and 1-flowered, or elongate, then loosely racemose. Flowers large and showy.

Type: *Epidendrum cucullatum* L. [R. Br. in Ait., Hort. Kew. ed. 2, 5: 216, 1813].

Approximately 15 species native to the New World tropics.

Brassavola cucullata (L.) R. Br. in Ait., Hort. Kew. ed. 2, 5: 516, 1813; Rolfe in Kew Bull. 278, 1893; Duss in Ann. Inst. Col. Marseille 3: 594, 1897; Boldingh, Fl. St. Eustat., Saba and St. Martin 43, 1909; Cogn. in Urb., Symb. Antill. 6: 554, 1910; Schlechter in Orchis 13: 45, 1919; Stehlé, Fl. Descr. Antill. Fr. 1: 113, 1939; Hodge in Lloydia 17: 197, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 386, 1956. — **Fig. 58.**

Basionym: *Epidendrum cucullatum* L., Sp. Pl. ed. 2, 2: 1350, 1763, based on *Helleborine floribus albis, cucullatis*, Plum. Cat. 9, 1703, and Icon. Burm. t. 179, f. 1, 1759.

Type: Haiti, without proper locality. Coll. Plumier s.n. (p). Holotype is Plumier's original drawing.

Epiphytic, erect or pendulous plants up to 50 cm. tall. Primary stem or rhizome rather short. Secondary stems loosely approximate, slightly swollen at base, erect or arcuate, completely enclosed by imbricating scarious sheaths, up to 15 cm. long. Leaves terete, with a groove, acuminate, up to 30 cm. long. Inflorescence 1-flowered, on a short, up to 2 cm.-long peduncle. Flowers white to greenish white, rarely with a pale rose suffu-

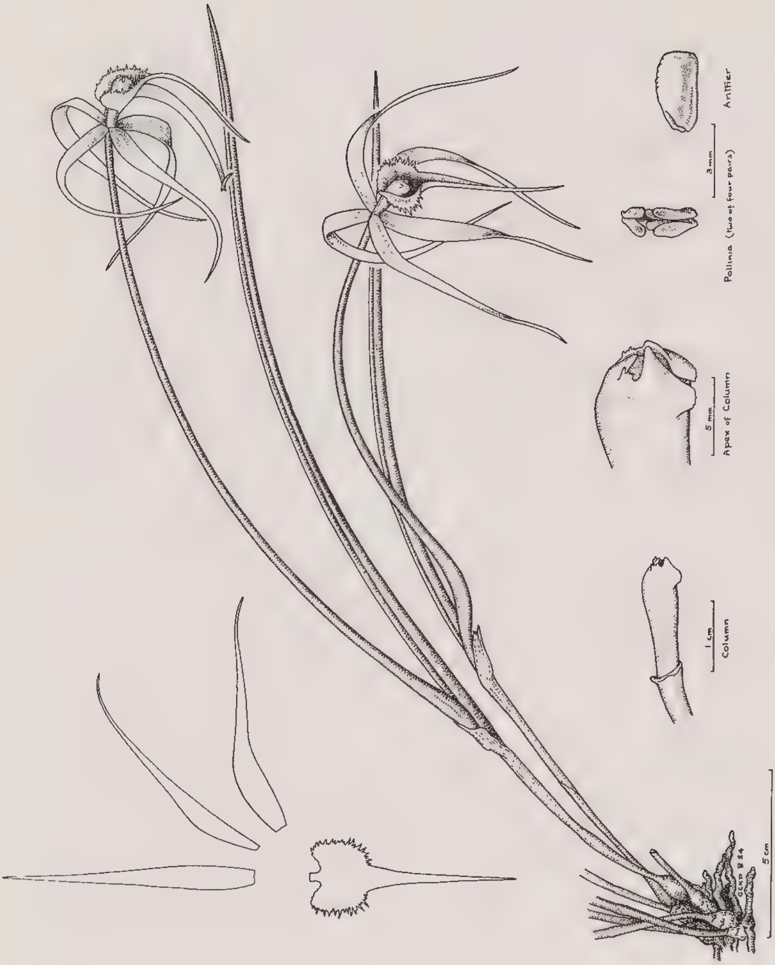


FIGURE 58. *Brassavola cucullata* (L.) R. Br. Drawn by G. C. K. Dunsterville.

sion, large and showy. Sepals and petals linear-lanceolate, acuminate, spreading or reflexed, up to 8 cm. long; petals and lateral sepals oblique. Lip from a cordate base 3-lobed; lateral lobes suborbicular with fimbriate margins; midlobe long linear-lanceolate to cuspidate, entire or more or less denticulate; whole lip up to 6 cm. long. Column cylindric with quadrate auricles, up to 1 cm. long. Pedicellate ovary cylindric, up to 20 cm. long. Fruit a globose capsule with up to 15 cm.-long rostrate tip.

Flowers more or less throughout the year.

General Distribution: Central America, Greater Antilles, Trinidad, Venezuela.

Distribution in Lesser Antilles: St. Martin!, Saba!, St. Eustatius!, Montserrat!, Antigua!, Guadeloupe!, Marie-Galante!, Dominica!, St. Vincent!, Bequia!, Mustique!, Ronde!, La Desirade!, Canuoan!, Grenada!.

ISOCHILUS R. Brown

Isochilus R. Br. in Ait., Hort. Kew. ed. 2, 5: 209, 1813.

Sepals equal in length, often prominently carinate dorsally; dorsal sepal free; lateral sepals more or less connate, gibbous basally. Petals subequal to sepals. Lip adnate to base of column by a sigmoid, short claw; blade entire, more or less sigmoid in natural position. Column erect, cylindric, wingless with somewhat oblique, footless base. Clinandrium 3-dentate. Anther terminal, operculate, incumbent, 2-celled. Pollinia 4, equal, waxy, compressed with plate-like replicate viscidium. Rostellum subulate. Stigmata confluent under rostellum.

Epiphytic or lithophytic plants with distinct, wiry rhizome. Stems erect, more or less approximate, slender, leafy. Leaves linear to oblong-linear, more or less bilobed at apex. Inflorescence terminal, commonly densely-flowered, secund to subsecund raceme. Flowers small, few to several.

Lectotype: *Epidendrum lineare* Jacq. [Rchb. f. in Bonpl. 2:22, 1854].

Approximately 5 neotropical species.

Isochilus linearis (Jacq.) R. Br. in Ait., Hort. Kew. ed. 2, 5: 209, 1813; Rolfe in Kew Bull. 277, 1893; Duss in Ann. Inst. Col. Marseille 3: 596, 1897; Cogn. in Urb., Symb. Antill. 6: 458, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 115, 1939; Correll in Bot. Mus. Leafl. Harv. Univ. 10: 5, 1941; Hodge in Lloydia 17: 197, 1954. — **Fig. 59.**

Basionym: *Epidendrum lineare* Jacq., Enum. Syst. Pl. 29, 1760, based on *Helleborine tenuifolia, repens,* Plum. Cat. 9, 1703 and Icon. Burm. t. 182, f. 1, 1759.

Type: Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Epiphytic or lithophytic rhizomatous plants up to 50 cm. tall. Primary

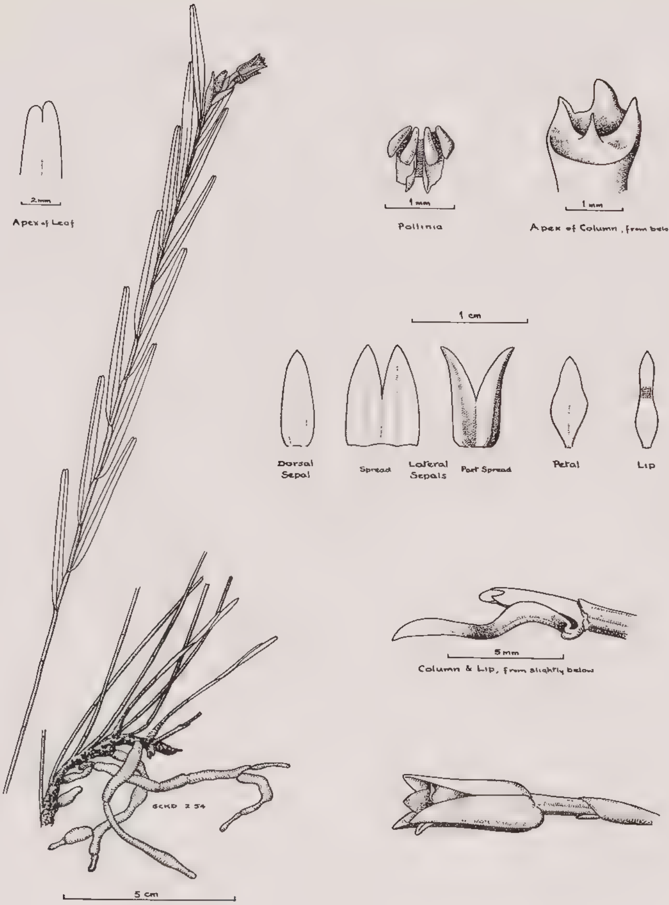


FIGURE 59. *Isochilus linearis* (Jacq.) R. Br. Drawn by G.-C. K. Dunsterville.

stem wiry, ascendent. Secondary stem slender, somewhat compressed, erect, leafy throughout. Leaves erect, subparallel with stem, linear to linear-lanceolate, articulate with clasping leaf-sheaths, bilobed to emarginate above, up to 6 cm. long and 4 mm. wide. Inflorescence terminal, few- to several-flowered, sessile. Bracts scarious, ovate-cymbiform, shorter than pedicellate ovaries. Flowers rose to white, secund. Dorsal sepal ovate to ovate-lanceolate, acute, up to 10 mm. long. Lateral sepals connate, at least to middle, similar to dorsal sepal, acute, dorsally distinctly carinate, up to 10 mm. long. Petals from a cuneate base elliptic to subrhombic, acute to obtuse, up to 10 mm. long. Lip linear-lanceolate, subpandurate, acute, sigmoid in natural position, with a short sigmoid claw adnate to base of column, up to 10 mm. long. Column cylindric, up to 5 mm. long. Pedicellate ovary up to 8 mm. long.

Flowers throughout the year.

GENERAL DISTRIBUTION: Throughout tropical America.

DISTRIBUTION IN LESSER ANTILLES: Montserrat, Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

HELLERIELLA A. D. Hawkes

Helleriella A. D. Hawkes in Phytologia 14: 4, 1966.

Sepals similar, free, spreading; lateral sepals somewhat oblique, with column-foot forming an obtuse mentum. Petals similar to sepals, but somewhat shorter and narrower. Lip articulate with column-foot, from a cuneate base sinuously arcuate. Column somewhat arcuate, thinly margined, slightly dilated on both sides of stigma, basally produced in a distinct, more or less developed foot; clinandrium obliquely ascending; stigma transversely lunate; rostellum a short, transverse plate, Anther operculate, each cell longitudinally septate. Pollinia 4, compressed with distinct caudicles.

Epiphytic plants with erect, approximate or superimposed stems, the basal halves of which are rather slender, leafless, the apical halves distichously and alternately leafy. Leaves chartaceous. Inflorescence terminal, subsessile, much shorter than terminal leaves; peduncle concealed by scarious sheaths; rachis short, 1- to 2-flowered, somewhat flexuous. Flowers conspicuous for the plant and often produced in succession.

TYPE: *Helleriella nicaraguensis* A. D. Hawkes [Phytologia 14: 4, 1966].

Three species, uncommon or rare in Nicaragua, the Andean regions of South America and the West Indian Islands.

Helleriella punctulata (Rchb. f.) Garay & Sweet, *comb. nov.* — **Fig. 60.**

Basionym: *Ponera punctulata* Rchb. f. in Bonpl. 3: 220, 1855.

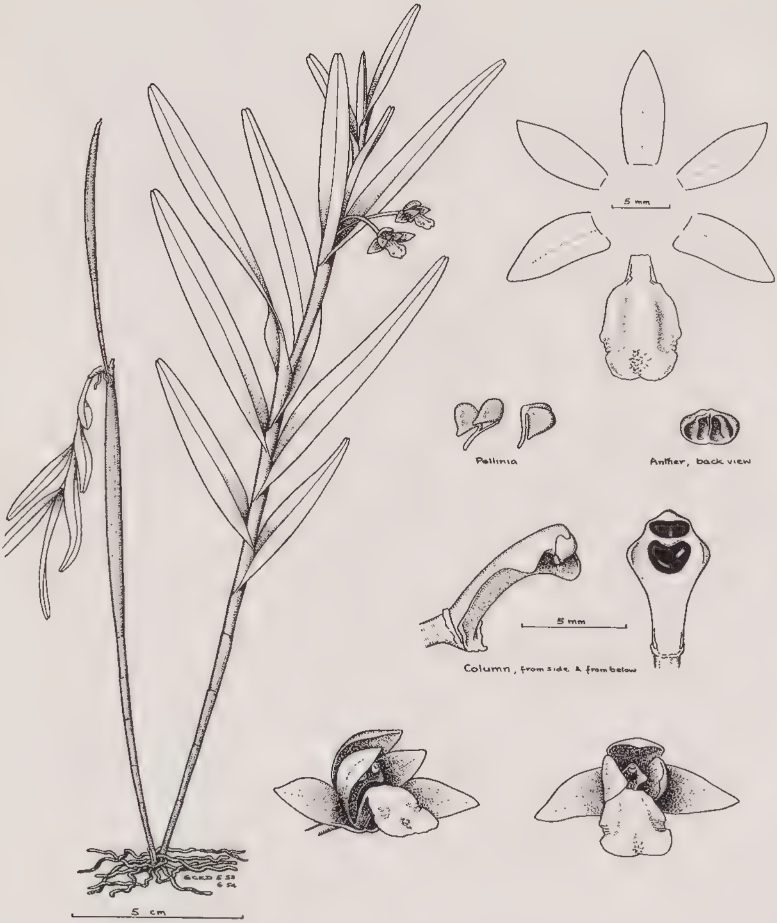


FIGURE 60. *Helleriella punctulata* (Rchb. f.) Garay & Sweet.
Drawn by G. C. K. Dunsterville.

Syn.: *Scaphyglottis punctulata* (Rchb. f.) C. Schweinf. in Bot. Mus. Leafl. Harv. Univ. 17: 47, 1955.
Type: Venezuela, without proper locality. Introduced by Geitner s.n.! (w).

Isochilus pauciflorus Cogn. in Urb., Symb. Antill. 6: 459, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 118, 1939.
Type: Guadeloupe, Bonbariman near Haut-Matouba. Coll. Duss no. 4193! (BR).

Epidendrum Dussii Cogn. in Urb., Symb. Antill. 6: 482, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 128, 1939; Schultes in Amer. Orch. Soc. Bull. 25: 388, 1956.
Lectotype: Guadeloupe, Nez Cassé. Coll. Duss no. 4170.

Epiphytic, caespitose plants, up to 50 cm. tall. Stems approximate, erect or ascending, rarely superimposed, basal halves completely covered with leaf-sheaths, upper halves distichously leafy. Leaves chartaceous, suberect, spreading, linear to linear-lanceolate with an obliquely emarginate, blunt apex, up to 13 cm. long and 1 cm. wide. Inflorescence terminal, much shorter than subtending leaves; peduncle up to 1.5 cm. long, racemose above. Flowers rose-colored, commonly two, rarely three produced in succession, with linear, acuminate bracts. Sepals free; dorsal sepal ovate to ovate-elliptic, acute to subacuminate, 7–9 mm. long and 3–4 mm. wide; lateral sepals triangular to triangular-ovate, acute or subacuminate, 7–9 mm. long and 3–4 mm. wide. Petals obliquely oblanceolate to obovate, acute, 6–9 mm. long and 2–3 mm. wide. Lip from a cuneate base flabellate-spathulate to subrhombic in outline, either truncate or broadly rounded and apiculate or lightly retuse in front, arcuately recurved below, with more or less incurved sides; disc with a pair of obscure calli, verrucose in front; 7–9 mm. long and 3.5–6 mm. wide in front. Column more or less arcuate, auriculate-alate on sides of stigma, basally extended into a distinct foot, 5.0–6.5 mm. long. Pedicellate ovary long and slender, 1.5–3 cm. long.

Flowers April to October.

GENERAL DISTRIBUTION: Andean regions of South America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Grenada.

REICHENBACHANTHUS Barbosa Rodrigues

Reichenbachanthus Barb. Rodr., Gen. et Sp. Orch. Nov. 2: 164, 1882.

Sepals subequal, free, reflexed. Petals smaller and narrower, reflexed. Lip parallel with column, sigmoid, with reflexed margins. Column cylindric, more or less angled, basally produced in a cuniculum which is decurrent on ovary. Clinandrium shallow. Anther terminal, operculate, incumbent. Pollinia 4, more or less compressed with granulose caudicles without stipe. Stigmata confluent, transverse under rostellum.

Epiphytic herbs, with terete or cylindric leaves on often superimposed stems. Inflorescence fasciculate, 1-flowered. Flowers small, produced in succession, resupinate. Ovary cuniculate.

TYPE: *Reichenbachanthus modestus* Barb. Rodr. [Barb. Rodr., Gen. et Sp. Orch. Nov. 2: 164, 1882].

Approximately 5 species native to the New World tropics.

Reichenbachanthus reflexus (Lindl.) Brade in Rodriguesia 1: 55, 1935. — **Fig. 61.**

Basionym: *Scaphyglottis reflexa* Lindl. in Bot. Reg. 25: Misc. p. 20, 1839.
Type: Guyana (Demarara), without proper locality. Introduced and cultivated by Loddiges s.n.! (K–L).

Epiphytic, caespitose, pendent herbs, up to 45 cm. long. Stems aggregate, terete, bulbous, thickened at base, simple or superimposed, completely enclosed by imbricating scarious sheaths, up to 15 cm. long. Leaves semiterete, grooved, arcuate, linear, acuminate, up to 30 cm. long. Inflorescence fasciculate, 1-flowered, arising terminally from a group of imbricating scarious bracts. Flowers rather small, pale green with white lip, occasionally with purplish suffusion. Sepals and petals reflexed. Dorsal sepal elliptic-oblong, acute or subacuminate, up to 5 mm. long. Lateral sepals obliquely ovate-oblong to ovate-triangular, acute to subacuminate, up to 6 mm. long. Lip from cuneate base 3-lobed, lobes reflexed; lateral lobes obtuse-triangular; midlobe subquadrate, deeply cleft in front with more or less diverging apices; whole lip up to 6 mm. long and 5.5 mm. wide when spread. Fruit an ovoid capsule up to 12 mm. long.

Flowers from September to May.

GENERAL DISTRIBUTION: Panama, Greater Antilles, Trinidad, Venezuela, Surinam, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

OBSERVATION: The material reported in the literature from Grenada under *Hexisea reflexa* Rchb. f. is referable to this species and not to *Reichenbachanthus emarginatus* Garay of which it is a synonym.

SCAPHYGLOTTIS Poeppig & Endlicher

Scaphyglottis Poepp. & Endl., Nov. Gen. ac Sp. Pl. 1: 58, 1836.

Sepals free, erect or more or less spreading; lateral sepals adnate to column-foot and with it forming a distinct mentum. Petals similar to dorsal sepal, somewhat small. Lip adnate to or continuous with column-foot, entire or lobed, often with repand margins. Column erect or arcuate, more or less winged, often auriculate or brachiate with an entire, low clinandrium, basally produced in a more or less distinct foot. Anther

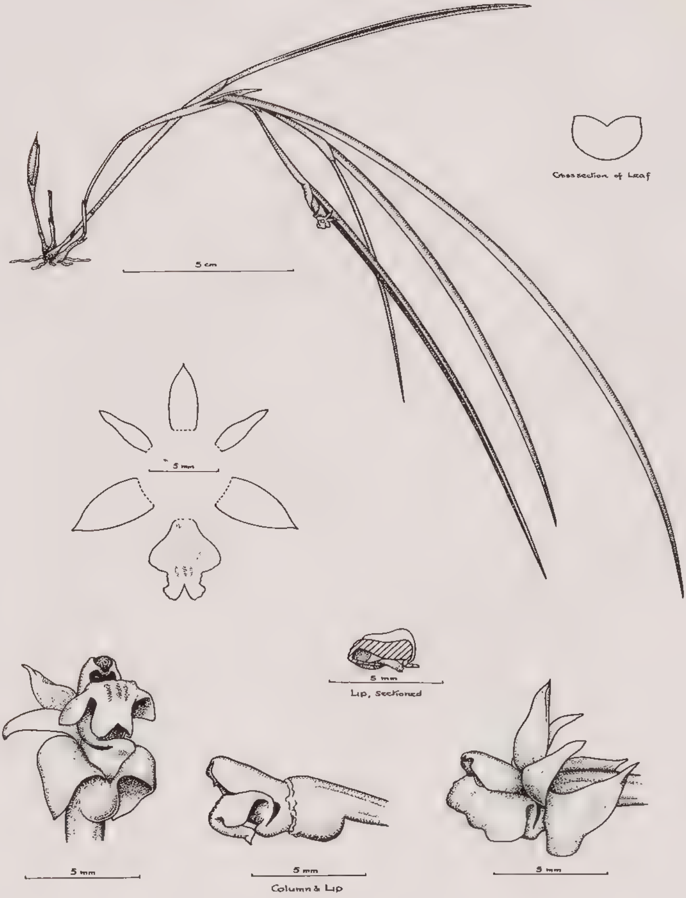


FIGURE 61. *Reichenbachanthus reflexus* (Lindl.) Brade.
Drawn by G. C. K. Dunsterville.

terminal, operculate, incumbent, 2-celled. Pollinia 4, waxy, ovoid or subglobose, not compressed, connected by a small viscidium. Stigmata confluent, transverse under rostellum.

Epiphytic herbs with superimposed, terete, cylindric or fusiform stems. Leaves conduplicate, commonly two, terminal. Inflorescene terminal, fasciculate; peduncle 1-flowered. Flowers small.

LECTOTYPE: *Fernandezia graminifolia* Ruíz & Pav. [Garay & Sweet in Journ. Arnold Arb. 53: 528, 1972.

About 40 species native to the American tropics.

KEY TO SPECIES

1. Plants rather small, delicate; leaves linear-ligulate, up to 6 cm. long; lip entire, spathulate .... *S. prolifera*
1a. Plants stout; leaves oblong-elliptic, up to 15 cm. long; lip distinctly 3-lobed .... *S. modesta*

Scaphyglottis modesta (Rchb. f.) Schltr. in Fedde Rep 23: 46, 1926; Hodge in Lloydia 17: 199, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 392, 1956. — **Fig. 62.**

Basionym: *Tetragamestus modestus* Rchb. f. in Bonpl. 2: 21, 1854; Cogn. in Urb., Symb. Antill. 6: 460, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 119, 1939.
Type: Tropical America, introduced and cultivated by Josst s.n.! (w).

Epiphytic, caespitose plants with superimposed stems, up to 50 cm. tall. Stems cylindrical to fusiform with a few imbricating basal sheaths. Leaves 1–2, terminal, rather thin in texture, narrowly oblong-elliptic to linear-lanceolate, acute or obtuse, up to 15 cm. long and 2 cm. wide. Inflorescence fasciculate, arising from a group of imbricating scarious bracts. Flowers fleshy, yellowish green with maroon suffusion. Dorsal sepal ovate to ovate-elliptic, acute to obtuse, up to 6 mm. long. Lateral sepals similar, but oblique, up to 6.5 mm. long. Petals elliptic-oblong to ovate-oblong, obtuse, up to 5 mm. long. Lip from a cuneate base 3-lobed; lateral lobes small, rounded; midlobe semiorbicular to triangulate-ovate, acute to obtuse or rounded; disc at junction of midlobe and lateral lobes provided with a bilobed fleshy callus; whole lip up to 6 mm. long. Column cylindric, about 4 mm. long. Ovary cylindric, up to 6 mm. long.

Flowers from January to June.

GENERAL DISTRIBUTION: Trinidad, Greater Antilles, Guyana, Venezuela, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Vincent!, Grenada!.

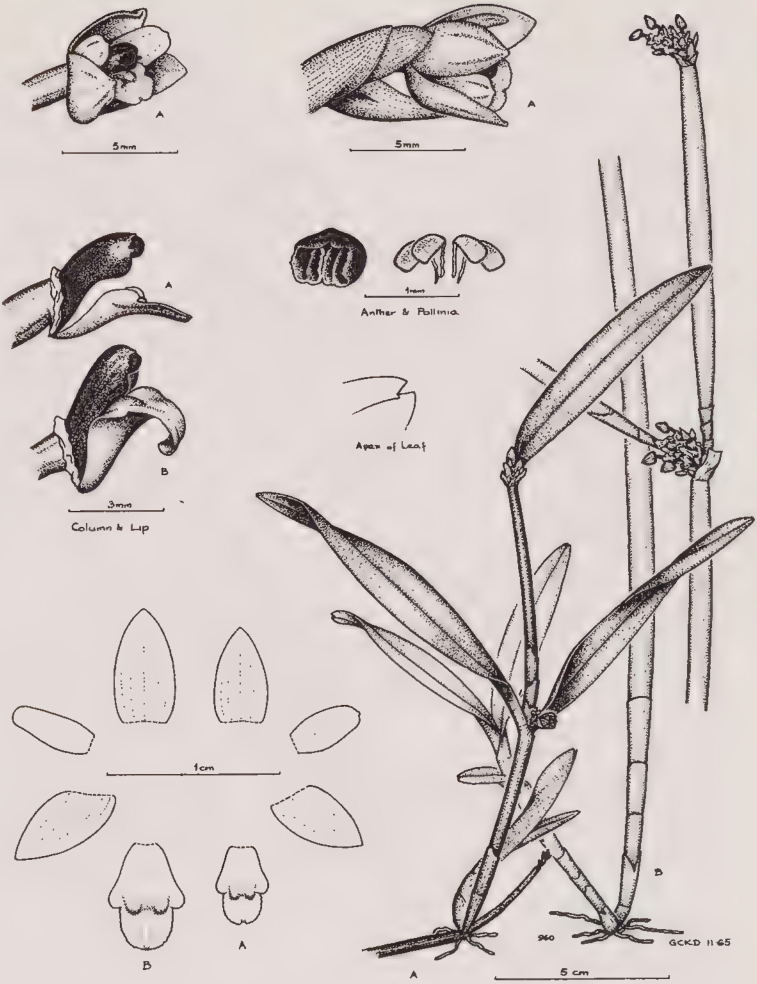


FIGURE 62. *Scaphyglottis modesta* (Rchb. f.) Schltr.
Drawn by G. C. K. Dunsterville.

Scaphyglottis prolifera Cogn. in Mart. Fl. Bras. 3, pt. 5: 15, 1898, *excl. syn.*; in Urb., Symb. Antill. 6: 461, 1910; Correll in Bot. Mus. Leafl. Harv. Univ. 9: 148, 1941. — **Fig. 63.**

Lectotype: Introduced from West Indies and cultivated by Colbill s.n.! (K–L).

Syn.: *Scaphyglottis cuneata* Schltr. in Beih. Bot. Centralbl. 36, pt. 2: 398, 1918; Schultes in Amer. Orch. Soc. Bull. 25: 392, 1956.
Type: Guatemala, Rio Dulce, near Livingston. Coll. v. Tuerckheim s.n.! (AMES).

Epiphytic, caespitose plants with superimposed stems, up to 20 cm. tall. Stems erect, fusiform, basally enclosed by 2–3 imbricating sheaths. Leaves coriaceous, linear to linear-ligulate, up to 6 cm. long and 5 mm. wide, but usually smaller. Inflorescence fasciculate, single flowers appearing in succession. Flowers white to cream, small, with more or less spreading segments. Dorsal sepal linear-oblong, obtuse, up to 5 mm. long; lateral sepals obliquely oblong-elliptic, obtuse, up to 5 mm. long. Petals linear-oblanceolate, obtuse, up to 4 mm. long. Lip from a cuneate base spathuate with reflexed apex, obtuse to slightly emarginate, at point of reflexion the disc is provided with a small, blunt callus; whole lip up to 6 mm. long. Column cylindric, more or less angular. Ovary sessile, cylindric, up to 5 mm. long. Capsule rostrate.

Flowers more or less throughout the year.

General Distribution: Throughout the neotropics.

Distribution in Lesser Antilles: Grenada!.

HEXADESMIA Brongniart

Hexadesmia Brongn. in Ann. Sci. Nat. ser. 2, 17: 44, 1842.

Sepals and petals similar, free, spreading; lateral sepals adnate to column-foot and with it forming a mentum. Lip articulate with column-foot, more or less recurved. Column erect to arcuate, clavate, more or less angular, basally dilated and produced in a foot. Anther terminal, operculate, incumbent, 2-celled, imperfectly septate. Pollinia 6, waxy, unequal in size, held together by a small viscidium. Stigmata 2, confluent under rostellum.

Epiphytic herbs, caespitose or with stems superimposed. Stem thickened into pseudobulbs, often stipitate, 1- to 2-leaved at apex. Inflorescence terminal, fasciculate or racemose, one- to several-flowered. Flowers small to showy with spreading segments.

Type: *Hexadesmia fasciculata* Brongn. [Brongn. in Ann. Sci. Nat. ser. 2, 17: 44, 1842].

Approximately 15 species distributed in the American tropics.

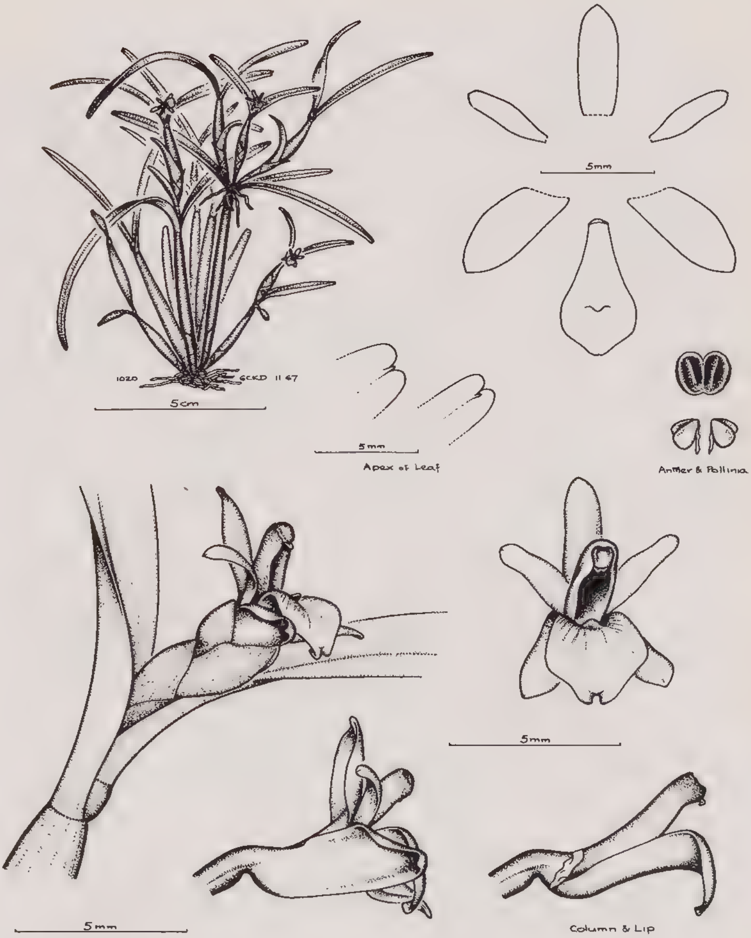


FIGURE 63. *Scaphyglottis prolifera* Cogn. Drawn by G. C. K. Dunsterville.

Hexadesmia Dunstervillei Garay in Bot. Mus. Leafl. Harv. Univ. 18: 203, 1958. — **Fig. 64.**

Type: Venezuela, Estado Miranda, Guatopo. Coll. Dunsterville no. 336! (AMES).

Epiphytic, caespitose plants up to 30 cm. tall. Stem erect or arcuately pendent, often superimposed, pseudobulbose. Pseudobulbs cylindric to fusiform, up to 8 cm. long, 2-leaved at apex, basally long-stipitate. Leaves coriaceous, oblong-elliptic, acute, sessile, up to 10 cm. long. Inflorescence short, 1- to 2-flowered; peduncle filiform, more or less enclosed by small, imbricating, bract-like sheaths. Flowers relatively large, pale greenish white with with light maroon to pink veins. Sepals and petals similar, spreading, ovate-lanceolate, subacuminate, up to 16 mm. long. Lip subquadrate-flabellate to obovate, rounded in front with an indistinct apicule; disc basally 2-carinate; whole lip up to 15 mm. long. Column arcuate-clavate, angular. Pedicellate ovary slender, up to 15 mm. long.

Flowers in December.

GENERAL DISTRIBUTION: Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia, Piton Troumassée. Coll. Proctor no. 21589! (AMES).

POLYSTACHYA Hooker

Polystachya Hook., Exot. Fl. 2: t. 103, 1824.

Sepals connivent or somewhat spreading, free; lateral sepals adnate to column-foot and through position forms with it a distinct hood. Petals smaller, mostly linear. Lip uppermost in natural position, entire or lobed, articulate with column-foot; disc commonly farinaceous. Column short, cylindric, rather broad with a more or less truncate clinandrium, basally extended into a distinct foot. Anther terminal, operculate, incumbent, imperfectly 2-celled. Pollinia 4, waxy, more or less in two pairs, viscid gland small. Stigmata confluent, transverse under rostellum.

Epiphytic or lithophytic plants. Stems erect, often pseudobulbous or fusiform, simple or superimposed, leafy. Leaves conduplicate, one to several. Inflorescence terminal; peduncle commonly enclosed by scarious sheaths, terminated by a few- to many-flowered receme or panicle. Flowers not resupinate, mostly small.

TYPE: *Epidendrum minutum* Aubl. [Hook., Exot. Fl. 2: t. 103, 1824].

About 20 species native to the tropics and subtropics of both hemispheres.

KEY TO SPECIES

1. Lateral lobes of lip subquadrate-subfalcate; column with a prominent, up to 3 mm.-long foot . . . . *P. concreta*

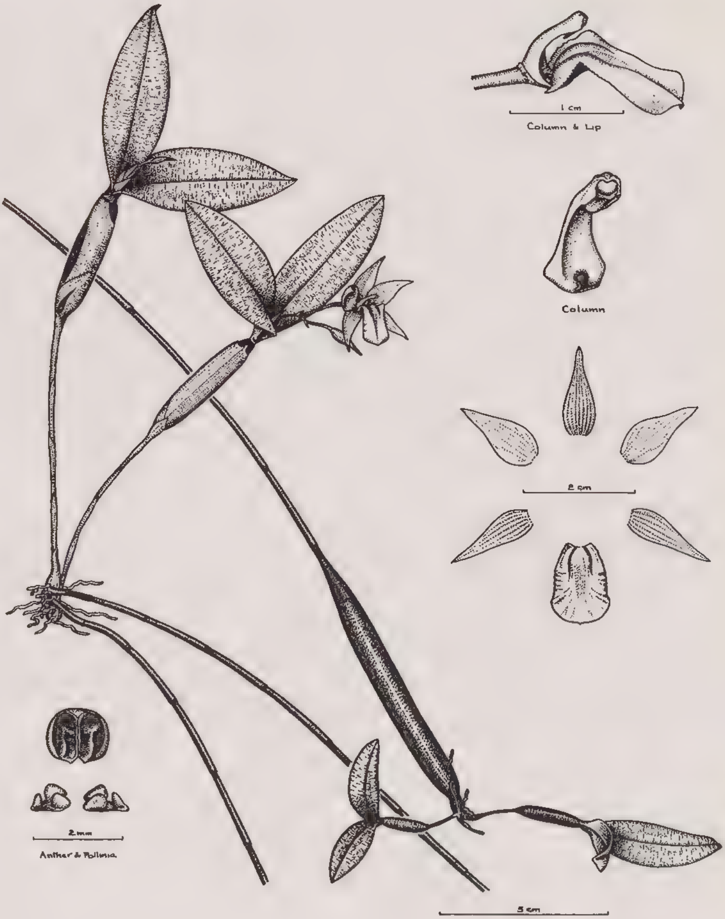


FIGURE 64. *Hexadesmia Dunstervillei* Garay. Drawn by G. C. K. Dunsterville.

1a. Lateral lobes of lip triangular-falcate; column with a short, up to 1 mm.-long foot .... *P. foliosa*

Polystachya concreta (Jacq.) Garay & Sweet, *comb. nov.* — **Fig. 65B.**

Basionym: *Epidendrum concretum* Jacq., Enum. Syst. Pl. 30, 1760.
Type: Martinique, without proper locality. Coll. Jacquin s.n.

Syn.: *Epidendrum minutum* Aubl., Hist. Pl. Guin. Fr. 2: 824, 1775, based on *Helleborine ramosa, floribus minimis, luteis*, Plum. Cat. 9, 1703, and Icon Burm. t. 185, f. 1, 1759, not *Polystachya minuta* Rich. & Gal. 1845.
Cranichis luteola Sw., Fl. Ind. Occid. 3: 1443, 1804, *nom. illeg.*
Dendrobium polystachyon Sw. in Kongl. Vetensk. Acad. Handl. 21: 247, 1800, *nom. superfl.*
Polystachya luteola (Sw.) Hook., Exot. Pl. 2: t. 103, 1824, *nom. illeg.*; Rolfe in Kew Bull. 278, 1893; Duss in Ann. Inst. Col. Marseille 3: 597, 1897; Cogn. in Urb., Symb. Antill. 6: 381, 1909; Boldingh, Fl. St. Eustat., Saba and St. Martin 41, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 174, 1939; Hodge in Lloydia 17: 199, 1954, Schultes in Amer. Orch. Soc. Bull. 25: 392, 1956.
Type. Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Plants epiphytic, erect, very variable in size, up to 45 cm. tall. Stem basally thickened, ovoid, pseudobulb-like, leafy, up to 2 cm. tall. Leaves 2–5, papery, oblong-elliptic to elliptic, obtuse, articulate with leaf-sheaths, up to 20 cm. long and 3 cm. wide. Inflorescence terminal, paniculate; peduncle elongate, compressed, completely enclosed by scarious sheaths; branches spicate, loosely many-flowered. Flowers fleshy, rather small, yellow or yellowish green, non-resupinate. Dorsal sepal oblong-elliptic, obtuse, up to 4 mm. long and 2.5 mm. wide. Lateral sepals obliquely triangular, acute, up to 5 mm. long and 4 mm. wide. Petals oblanceolate, obtuse, up to 3 mm. long and 1 mm. wide. Lip from a cuneate base 3-lobed; lateral lobes subquadrate-subfalcate; midlobe quadrate to oblong, truncate in front and slightly emarginate; disc farinose, basally provided with a linear callus; whole lip up to 5 mm. long and 4.5 mm. wide. Column short, cylindric, basally produced in an up to 3 mm.-long foot. Ovary cylindric, sessile, up to 6 mm. long.

Flowers more or less throughout the year.

General Distribution: Florida; pantropical.

Distribution in Lesser Antilles: St. Kitts, St. Eustatius!, Montserrat, Guadeloupe!, Dominica!, Martinique!, St. Lucia, St. Vincent!, Grenada!.

Observation: For complete synonymy of this widespread species see Dunsterville & Garay, Venezuelan Orchids Illustrated 3: 266, 1965.

Polystachya foliosa (Hook.) Rchb. f. in Walp. Ann. Bot. Syst. 6: 640, 1863; Cogn. in Urb., Symb. Antill. 6: 382, 1909; Schultes in Amer. Orch. Soc. Bull. 25: 392, 1956. — **Fig. 65A.**

Basionym: *Stelis foliosa* Hook. in Ann. Nat. Hist. 2: 330, 1839.
Type: Guyana, without proper locality. Coll. Parker s.n.! (K).

Plants very similar in size, shape and color to *Polystachya concreta* (Jacq.) Garay & Sweet. Differs from it in floral structures, especially in the lack of a prominent column-foot. Dorsal sepal ovate-triangular, acute to subacuminate, up to 3 mm. long and 2 mm. wide. Lateral sepals obliquely triangular, acuminate, up to 4 mm. long and 2.5 mm. wide. Petals linear to linear-oblanceolate, acute or obtuse, up to 2.5 mm. long and less than 1 mm. wide. Lip from a cuneate base 3-lobed; lateral lobes triangular-falcate, acute; midlobe oblong with a retuse, recurved apex; disc farinose and basally provided with an ovoid callus; whole lip up to 4 mm. long and 3 mm. wide. Column up to 1 mm. long with a short up to 1 mm.-long column-foot.

Flowers from September through May.

General Distribution: American tropics.

Distribution in Lesser Antilles: Grenada!.

BLETIA Ruíz & Pavón

Bletia Ruíz & Pav., Fl. Peru. & Chile., Prodr. 119, t. 26, 1794.

Sepals similar, free, ringent or spreading. Petals similar to dorsal sepal, somewhat wider. Lip free, entire or lobed, attached to base of column; disc variously crested. Column elongate, often arcuate, more or less winged, basally produced in a short, more or less rectangular, biauriculate foot. Anther operculate, incumbent, fleshy. Pollinia 8, in two superimposed pairs, waxy, laterally somewhat compressed, connected by granulose plate-like viscidium, without a stipe or gland. Stigmata confluent, transverse.

Terrestrial or epiphytic herbs. Corm subglobose, few-leaved. Leaves plicate, articulate, more or less petiolate. Inflorescence lateral, scapose. Peduncle remotely few-sheathed, terminated by a loosely, several-flowered raceme or occasionally a panicle. Flowers often showy.

Lectotype: *Bletia catenulata* Ruíz & Pav. [Britton & Millspaugh, Bahama Flora 96, 1920].

About 40 species native to the tropics and subtropics of the Americas.

Bletia patula Hook. in Bot. Mag. 63: t. 3518, 1836; Stehlé, Fl. Descr. Antill. Fr. 1: 67, 1939.

Type: Haiti, without proper locality. Introduced in the Edinburgh Botanical Garden without reference to colllector. (E).

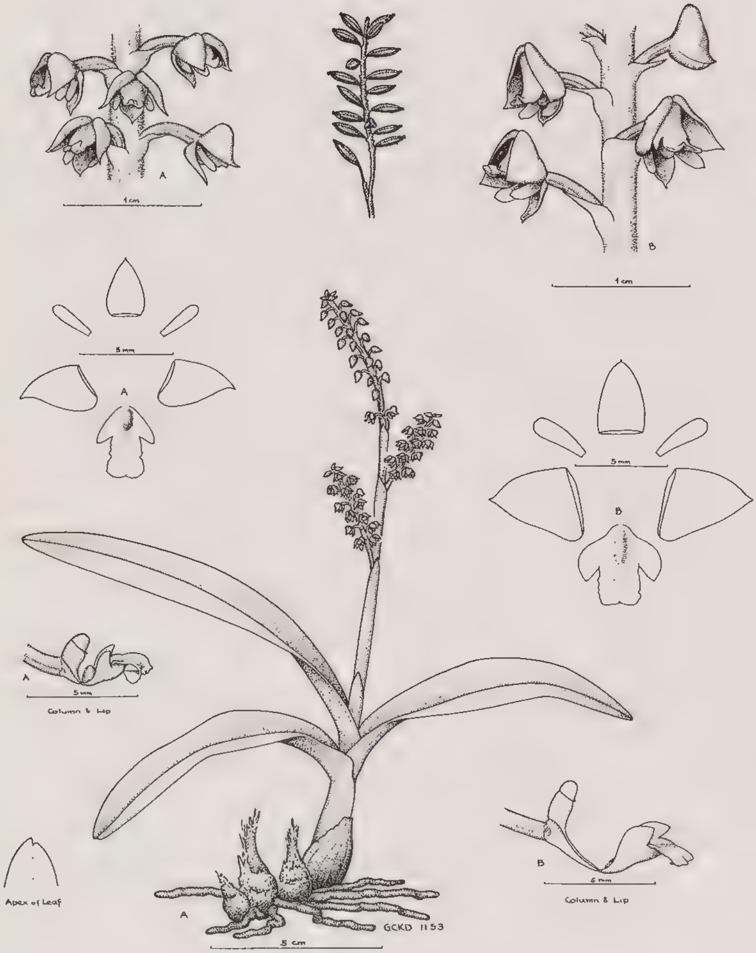


FIGURE 65. A. *Polystachya foliosa* (Hook.) Rchb. f. B. *Polystachya concreta* (Jacq.) Garay & Sweet. Drawn by G. C. K. Dunsterville.

Terrestrial herbs up to 70 cm. tall. Corm subglobose, up to 5 cm. in diameter, commonly enclosed by scarious sheaths. Leaves tufted on top of corm, linear-lanceolate, acuminate, plicate, basally gradually tapering into a petiole, up to 50 cm. long and 4 cm. wide. Inflorescence lateral. Peduncle erect, remotely several-sheathed, terminating in a loosely several-flowered raceme. Flowers rose, showy, with spreading segments. Sepals similar, oblong-oblanceolate, acute to subacuminate, up to 3.5 cm. long; lateral sepals somewhat oblique. Petals oblanceolate to subspathulate, obtuse or rounded, rarely acute, up to 3.5 cm. long. Lip ovate in outline, entire to sublobulate, rarely distinctly 3-lobed, with rounded bilobed apex, constricted at base, margins crispate-undulate; disc along its entire length provided with 5-6 undulate, parallel, prominent keels; whole lip up to 3.5 cm. long. Column erect, winged, up to 2.5 cm. long. Pedicellate ovary up to 2 cm. long.

Flowers throughout the year.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe, Martinique!.

Observation: Specimens referable to this species have been reported by Cogniaux erroneously under *B. florida* (Salisb.) R. Br.

EULOPHIA R. Brown

Eulophia R. Br. ex Lindl. in Bot. Reg. 8: t. 686, 1823.

Sepals free, more or less spreading. Lateral sepals adnate to column-foot. Petals smaller, parallel with column. Lip articulate with column-foot, saccate or spurred at base; disc with keels or papillae. Column cylindric, more or less winged, basally extended into a distinct foot. Anther operculate, incumbent. Pollinia waxy, on a short, broad distinct stipe. Stigma transverse under rostellum.

Terrestrial or epiphytic plants. Stem arising from thickened rhizomes or corms, leafy. Leaves plicate, sheathing below. Inflorescence scapose, lateral. Peduncle remotely several-sheathed, terminated by a loosely- or densely-flowered raceme. Flowers small to showy.

Type: *Eulophia guineensis* Lindl. [Pfitzer, Entwurf. Nat. Anord. Orch. 59, 1887].

Approximately 200 species, pantropical in distribution.

Eulophia alta (L.) Fawc. & Rendle, Fl. Jam. 1: 112, 1910; Hodge in Lloydia 17: 195, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 390, 1956. — **Fig. 66.**

Basionym: *Limodorum altum* L., Syst. ed. 12, 2: 594, 1767, based on *Helleborine radice arundinacea, foliis amplissimis, loratis*, Plum. Cat. 9, 1703, and Icon. Burm. t. 189, 1759.

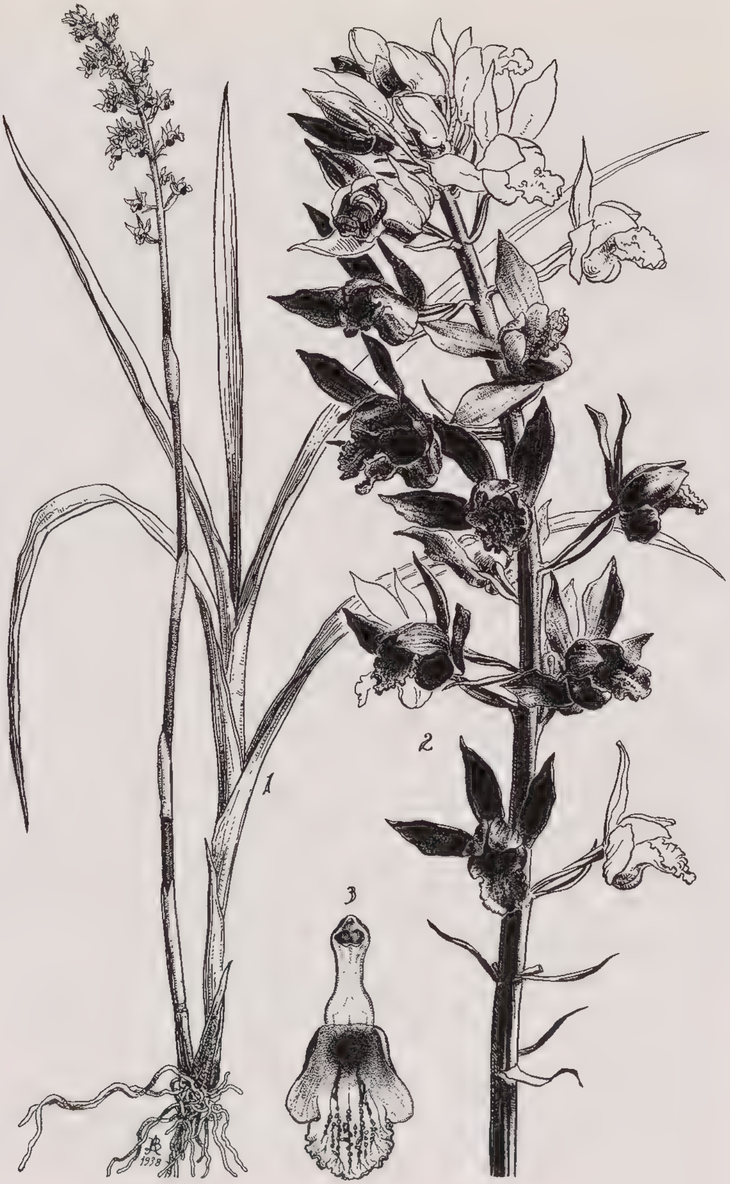


FIGURE 66. *Eulophia alta* (L.) Fawc. & Rendl. 1, plant. 2, inflorescence. 3, column and lip. Drawn by Blanche Ames Ames.

Syn.: *Cyrtopera alta* (L.) Stehlé, Fl. Descr. Antill. Fr. 1: 69, 1939.
Type: Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Cyrtopodium Woodfordii Sims in Bot. Mag. 43: t. 1814, 1816.
Cyrtopera Woodfordii (Sims) Lindl., Gen. and Sp. Orch. Pl. 183, 1833; Rolfe in Kew Bull. 278, 1893; Duss in Ann. Inst. Col. Marseille 3: 597, 1897.
Type: Brasil, Sao Paulo. Coll. Woodford s.n.! (K).

Dendrobium longifolium H. B. K., Nov. Gen. et Sp. Pl. 1: 360, 1816.
Cyrtopera longifolia (H. B. K.) Rchb. f. in Walp. Ann. Bot. Syst. 6: 668, 1863; Cogn. in Urb., Symb. Antill. 6: 575, 1910.
Type: Colombia, Almaguer. Coll. Humboldt no. 1067! (P).

Plants 1–1.5 meters tall. Corm subglobose, up to 7 cm. in diameter. Stem short, completely enclosed by the imbricating sheath-bases of the leaves. Leaves few, plicate, lanceolate to oblong-lanceolate, rarely oblong-elliptic, up to 1 m. long and 10 cm. wide, commonly much smaller. Inflorescence erect. Peduncle robust, remotely several sheathed terminated by a loosely many-flowered raceme, up to 1.5 m. tall, commonly shorter. Bracts linear-lanceolate, acuminate, reflexed, as long as or shorter than pedicellate ovary. Flowers deep yellow-green with heavy purple-bronze flush. Sepals lanceolate to oblong-lanceolate, acute to acuminate; dorsal sepal up to 2.5 cm. long; lateral sepals up to 3 cm. long. Petals somewhat wider than sepals, oblong-spathulate to oblanceolate, obtuse, up to 2 cm. long. Lip 3-lobed; lateral lobes erect, subrotund; midlobe arcuately recurved, broadly triangular to subrotund, obtuse; disc with a pair of keels terminating in a tooth-like projection, apical portion papillose-crested, base of lip saccate. Pedicellate ovary up to 3 cm. long.

Flowers throughout the year.

General Distribution: Florida, Central America, Greater Antilles, Trinidad, Tobago, tropical South America, tropical Africa.

Distribution in Lesser Antilles: Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, St. Lucia!, Grenada!.

CYRTOPODIUM R. Brown

Cyrtopodium R. Br. in Ait., Hort. Kew. ed. 2, 5: 216, 1813.

Sepals and petals similar, free, spreading; lateral sepals somewhat decurrent on column-foot. Lip firmly adnate to column-foot, unguiculate, more or less lobed, lateral lobes parallel with column. Column rather short, cylindric with an oblique clinandrium, basally extended into a foot. Anther terminal, incumbent, imperfectly 2-celled. Pollinia 2, quite deeply cleft, waxy with a short linear caudicle and an ovate gland. Stigmata confluent, transverse under the broad, membranaceous rostellum.

Epiphytic or lithophytic plants. Stems caespitose, fusiform-thickened, developing in second year after leaves have been shed, many-jointed, covered with remnants of leaf-bases. Leaves on new growth tufted, distichous, plicate, prominently veined, ultimately deciduous. Inflorescence lateral, racemose or paniculate with prominent, colored, often foliaceous bracts. Flowers conspicuous.

TYPE: *Cymbidium Andersonii* Lamb. ex Andr. [R. Br. in Ait., Hort. Kew. ed. 2, 5: 216, 1813].

About 15 species native to the tropics and subtropics of the New World.

Cyrtopodium Andersonii (Lamb. ex Andr.) R. Br. in Ait., Hort. Kew. ed. 2, 5; 216, 1813; Rolfe in Kew Bull. 278, 1893; Cogn. in Urb., Symb. Antill. 6: 578, 1910.

Basionym: *Cymbidium Andersonii* Lamb. ex Andr., Bot. Reposit. 10: t. 651, 1812.

Type: St. Vincent, without proper locality. Coll. Anderson s.n.! (BM).

Epiphytic or lithophytic plants up to 1 meter tall. Pseudobulbs fusiform, approximately 50 cm. long. Leaves narrowly lanceolate, acuminate, plicate, up to 60 cm. long and 5 cm. wide. Inflorescence robust, erect, pedunculate, terminated by a large panicle, the branches of which are racemose, subdensely many-flowered. Bracts ovate, more or less reflexed, undulate, foliaceous, as long as or longer than the pedicellate ovary, up to 3 cm. long. Flowers showy, light yellow to canary-yellow, often with greenish suffusion. Sepals similar, spreading, ovate-lanceolate, acute, apices reflexed, undulate, up to 3.5 cm. long and 12 mm. wide. Petals narrowly ovate-lanceolate, acute, undulate, apices reflexed, up to 3 cm. long and 1 cm. wide. Lip shortly clawed, 3-lobed; lateral lobes erect, suborbicular, slightly emarginate; midlobe transverse elliptic with crenulate margins; disc from claw to junction of midlobe and lateral lobes provided with 3 approximate fleshy ridges; whole lip up to 2.2 cm. long and 2.8 cm. across lateral lobes when spread. Pedicellate ovary up 2.5 cm. long.

Flowers from December through February.

GENERAL DISTRIBUTION: Endemic in the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!.

OBSERVATION: *Cyrtopodium Andersonii* (Lamb. ex Andr.) R. Br. has been confused with *C. flavum* Link. et Otto ex Rchb. and *C. Engelii* Karst. by all contemporary authors since Lindley, who united these two different species under *C. Andersonii.* The original material from St. Vincent is distinguishable by the wavy, ovate-lanceolate sepals and petals which are almost twice as large as those of *C. flavum* or *C. Engelii.* Also the petals are shorter than the sepals, while the reverse holds for the other species.

XYLOBIUM Lindley

Xylobium Lindl. in Bot. Reg. 11: sub t. 897, 1825.

Sepals free, more or less spreading; lateral sepals decurrent on column-foot. Petals somewhat oblique, similar to dorsal sepal, but smaller. Lip adnate to column-foot, entire or lobed, parallel with face of column; disc with distinct callus. Column erect, cylindric, basally extended into a distinct foot. Clinandrium obliquely truncate. Anther terminal, operculate, incumbent, 1-celled. Pollinia 4 in two pairs on a transverse, scale-like viscidium. Stigmata confluent under rostellar plate.

Epiphytic, caespitose or rarely rhizomatous herbs. Pseudobulbs approximate 1- to 2-leaved. Leaves large, plicate, often petiolate. Inflorescence lateral, pedunculate, racemose above, loosely- to densely-flowered. Flowers rarely conspicuous with spreading segments.

TYPE: *Dendrobium squalens* Lindl. [Lindl. in Bot. Reg. 11: sub t. 897, 1825].

Approximately 30 species native to the American tropics.

Xylobium pallidiflorum (Hook.) Nichols., Dict. Gard. 4: 225, 1887; Rolfe in Kew Bull. 278, 1893; Cogn. in Urb., Symb. Antill. 6: 588, 1910; Hodge in Lloydia 17: 215, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 394, 1956. — **Fig. 67.**

Basionym: *Maxillaria pallidiflora* Hook. in Bot. Mag. 55: t. 2806, 1828.
Type: St. Vincent, without proper locality. Coll. Guilding s.n.! (K).

Epiphytic, caespitose plants up to 50 cm. tall. Pseudobulbs aggregate, ascending, cylindric to fusiform, basally enclosed by 3–4 scarious sheaths, terminated by a single leaf, up to 15 cm. long. Leaf plicate, elliptic to oblong-elliptic, acute to acuminate, broadly tapering into a distinct up to 8 cm.-long petiole, commonly shorter, including petiole up to 35 cm. long and 7 cm. wide, usually narrower. Inflorescence lateral; peduncle erect, remotely 2–3 sheathed, terminated by a loosely few-flowered raceme. Bracts linear, acuminate, as long as or rarely surpassing the pedicellate ovary. Flowers pale yellow. Dorsal sepal linear-oblong to oblong-elliptic, acute or shortly acuminate, up to 15 mm. long. Lateral sepals obliquely linear-oblong, acute or subacuminate, up to 18 mm. long. Petals obliquely ovate to ovate-lanceolate, acute to obtuse, up to 14 mm. long. Lip from a cuneate base obovate, with a rounded retuse apex, apical third recurved; disc fleshy, in middle provided with a 3-dentate, partially free callus, apical part thickened papillose; whole lip up to 14 mm. long. Column short, up to 6 mm. long, basally produced into an up to 8 mm.-long column-foot. Pedicellate ovary cylindric, about 1 cm. long.

Flowers from January to April.

GENERAL DISTRIBUTION: Greater Antilles, Venezuela, Colombia, Ecuador, Peru.

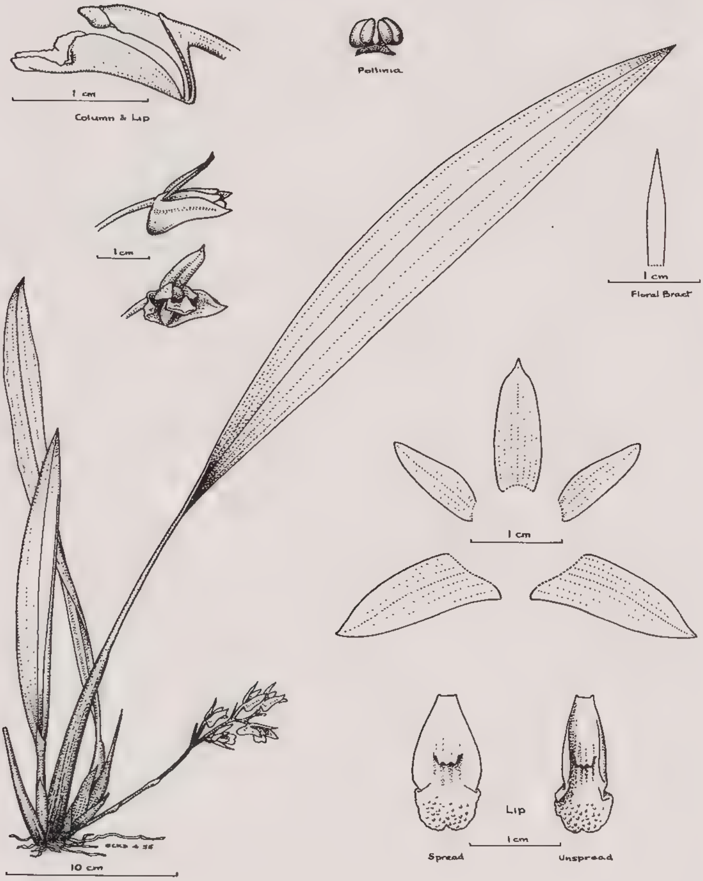


Figure 67. *Xylobium pallidiflorum* (Hook.) Nichols.
Drawn by G. C. K. Dunsterville.

Distribution in Lesser Antilles: Dominica!, St. Vincent!, Grenada!.

Observation: The Dominican specimen collected by Imray and reported by Grisebach, Cogniaux and Hodge as representing *Xylobium palmifolium* (Sw.) Benth. is based on the wrong identification. We have examined this collection in the Kew Herbarium and it is referrable to *Xylobium pallidiflorum*. *Xylobium palmifolium* is restricted in distribution to the Greater Antilles.

MAXILLARIA Ruíz & Pavón

Maxillaria Ruíz & Pav., Fl. Peru. & Chile., Prodr. 116, 1794.

Sepals free, more or less similar, ringent, rarely connivent and urceolate. Lateral sepals somewhat oblique, adnate to, or decurrent on, the more or less developed column-foot, and with it forming a distinct mentum. Petals similar to dorsal sepal, free. Lip adnate to, or articulate with, column-foot entire or lobed, commonly sessile, occasionally unguiculate; disc usually with a distinct callus. Column erect or arcuate, stout, wingless, basally extended into a more or less developed foot. Clinandrium usually oblique, thin-margined. Anther terminal, operculate, incumbent, 1-celled or imperfectly 2-celled. Pollinia 4, waxy, usually compressed, sessile on a short often semilunate viscidium, rarely with distinct caudicle.

Epiphytic or lithophytic, caespitose or rhizomatous herbs. Primary stem or rhizome elongate, repent, ascending or suberect, clothed with evanescent, papery sheaths. Secondary stems or pseudobulbs aggregate or remote, one- or two-leaved, rarely polyphyllous. Inflorescence one-flowered, fasciculate, glomerate or solitary. Flowers small to showy. Ovary and capsule sessile or pedicellate, rarely rostrate on top.

Observation: The former lectotypifications by Acuña in Bol. Tec. no. 60: 171, 1939 as *Maxillaria longipetala* Ruíz & Pav., now referable to the genus *Lycaste*, and by Brieger and Hunt in Taxon 18: 602, 1969 as *Maxillaria platypetala* Ruíz & Pav., based on a collection by Hall in the Lindley Herbarium, are contrary to the guide lines set forth in the International Code of Botanical Nomenclature. The holotype of *Maxillaria ramosa* Ruíz & Pav. is extant in the Delassert Herbarium in Geneva and this is the only species of the 16 which meets the circumscription of the genus as it has been understood for the past 100 years.

Lectotype: *Maxillaria ramosa* Ruíz & Pav. [Garay & Sweet in Journ. Arnold Arb. 53: 524, 1972.

Approximately 300 species native to the American tropics and subtropics.

Key to Species

1. Plants caespitose; pseudobulbs aggregate; midlobe of lip narrowly triangular, acuminate . . . . *M. guadalupensis*

1a. Plants rhizomatous; pseudobulbs remote; midlobe of lip otherwise . . 2

2. Pseudobulbs small, cylindric, completely hidden in cauline, tubular sheaths; inflorescence solitary; lip articulate with column-foot ..... *M. meridensis*

2a. Pseudobulbs well-developed, ancipitous or compressed, not hidden in sheaths; inflorescence fasciculate or glomerate; lip continuous with column-foot 3

3. Flowers fasciculate with long peduncles; lip distinctly 3-lobed. 4

3a. Flowers glomerate, subsessile; lip obscurely 3-lobed .... *M. conferta*

4. Leaves linear-oblong; lateral lobes of lip rounded; midlobe triangular ... . *M. coccinea*

4a. Leaves oblong-elliptic; lateral lobes of lip falcate, denticulate; midlobe ovate .... *M. inflexa*

Maxillaria coccinea (Jacq.) L. O. Wms. ex Hodge in Amer. Orch. Soc. Bull. 23: 42, 1954; in Lloydia 17: 219, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 390, 1956.

Basionym: *Epidendrum coccineum* Jacq., Enum. Syst. Pl. 29, 1760, based on *Helleborine coccinea multiflora*, Plum. Cat. 9, 1703, and Icon. Burm. t. 180, f. 1, 1759.

Syn.: *Cymbidium coccineum* (Jacq.) Willd., Sp. Pl. 4: 94, 1805.
Ornithidium coccineum (Jacq.) R. Br. in Ait., Hort. Kew. ed. 2, 5: 210, 1813; Rolfe in Kew Bull. 278, 1893; Boldingh, Fl. St. Eustat., Saba and St. Martin 43, 1909; Cogn. in Urb., Symb. Antill. 6: 609, 1910; Stehlé, Fl. Descr. Antill, Fr. 1: 231, 1939.

Type: Martinique, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Epiphytic, robust plants, up to 50 cm. tall. Primary stem or rhizome suberect or ascendent, completely enclosed by imbricating papery sheaths, leaf-bearing at terminal growths. Pseudobulb remote, ovoid, more or less compressed, up to 4 cm. long, 1-leaved. Leaves, both on the pseudobulb and those from the terminal growth linear-oblong, acute or obtuse, conduplicate at base, articulate, up to 35 cm. long and 2.5 cm. wide. Inflorescence long-pedunculate, fasciculate, axillary from current year's growth. Peduncle filiform, up to 6 cm. long, 1-flowered. Bracts obliquely tubular, acute. Flowers bright rose to carmine or vermilion, ringent. Sepals similar, fleshy, ovate-lanceolate, acuminate, concave, up to 12 mm. long. Petals ovate to ovate-lanceolate, acute or subacuminate, up to 8 mm. long. Lip fleshy, continuous with column-foot, 3-lobed; lateral lobes erect, parallel with column, obliquely ovate, rotund; midlobe arcuate, ovate-lanceolate to ovate-triangular, acute; disc very fleshy to middle where it is provided with a transverse ridge; whole lip up to 8 mm. long. Column short, cylindric. Pedicellate ovary rostrate.

Flowers from September to May.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Saba!, St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

Maxillaria conferta (Griseb.) C. Schweinf. ex Leon in Contrib. Ocas. Mus. Hist. Nat. Coleg. de la Salle no. 8: 395, 1946; Schultes in Amer. Orch. Soc. Bull. 25: 391, 1956. — **Fig. 68.**

Basionym: *Ornithidium confertum* Griseb., Fl. Br. W. Ind. Isl. 626, 1864; Cogn. in Urb., Symb. Antill. 6: 611, 1910.
Type: Trinidad, without proper locality. Coll. Bradford s.n.! (K).

Syn.: *Epidendrum vestitum* Sw., Nov. Gen. & Sp. Pl., Prodr. 124, 1788, not *Maxillaria vestita* Schltr.
Camaridium purpureum Spreng., Syst. Veg. 3: 735, 1826, *nom. illeg.*
Ornithidium vestitum (Sw.) Rchb. f. in Walp. Ann. Bot. Syst. 6: 491, 1863; Cogn. in Urb., Symb. Antill. 6: 610, 1910.
Maxillaria purpurea (Spreng.) Ames & Correll in Bot. Mus. Leafl., Harv. Univ. 11: 16, 1943, *nom. illeg.*
Type: Jamaica, without proper locality. Coll. Swartz s.n.! (BM, S, UPS).

Epiphytes with ascending rhizome, often branching, completely enclosed by short, closely-packed, distichous sheaths. Pseudobulbs remote, enclosed by large scarious distichous sheaths, ovate-elliptic in outline, ancipitous, 1-leaved, up to 3 cm. long. Leaves oblong-linear to linear-lanceolate, acute, basally contracted into a distinct short petiole, including the petiole up to 20 cm. long and 2 cm. wide, commonly much smaller. Inflorescence fasciculate, axillary from imbricating sheaths below the pseudobulb. Peduncle short, 1-flowered, up to 7 mm. long. Flowers small, white or white with purple veins, rarely pale rose. Dorsal sepal elliptic to ovate-elliptic, complicate-acute, concave, up to 5 mm. long; lateral sepals connate to middle, similar in size and shape to dorsal sepal. Petals similar to dorsal sepal, somewhat shorter and narrower, up to 4 mm. long. Lip continuous with base of column, from a cuneate base ovate-elliptic in outline, obscurely lobulate; lateral lobes erect, rounded; midlobe porrect, fleshy, more or less emarginate; disc with a transverse fleshy escalloped ridge between lateral lobes, basally somewhat excavate in front of tapering claw; whole lip up to 4 mm. long. Column short, stout.

Flowers from November to May.

GENERAL DISTRIBUTION: Guatemala, Honduras, Venezuela, Colombia, Brazil, Peru, Bolivia.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

Maxillaria guadalupensis Cogn. in Urb., Symb. Antill. 6: 604, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 225, 1939.

Type: Guadeloupe, near Polygone Militaire. Coll. Duss no. 4143! (BR).

Epiphytic, caespitose plants up to 11 cm. tall. Pseudobulbs approximate, subcylindric to narrowly ovoid, distinctly ancipitous, 1-leaved, up to 2 cm. long. Leaves erect, quite membranaceous, oblong-ligulate, acute, basally abruptly contracted into an up to 18 mm.-long petiole, including

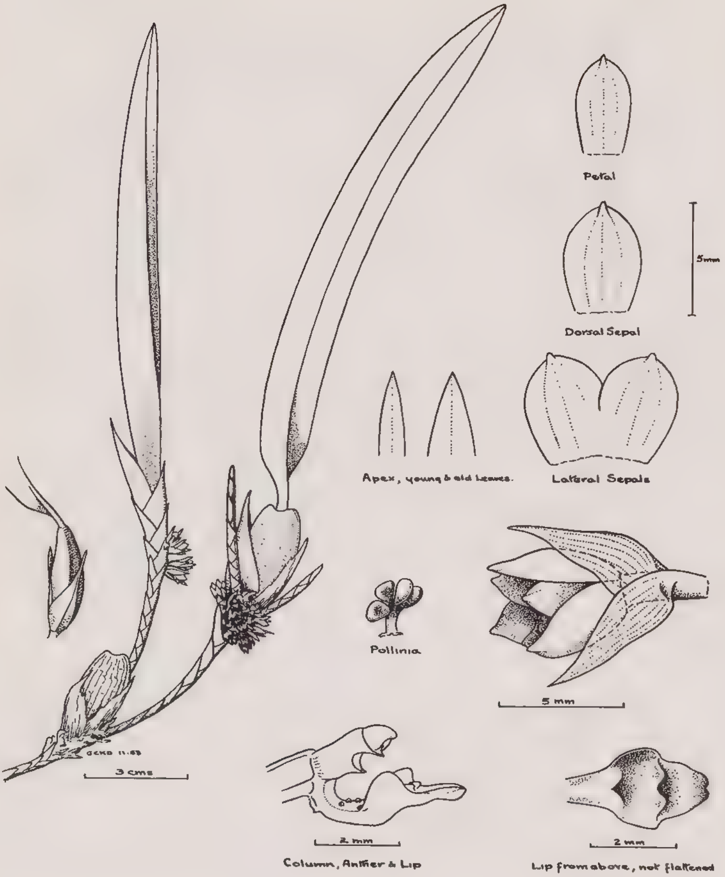


FIGURE 68. *Maxillaria conferta* (Griseb.) C. Schweinf. ex Leon.
Drawn by G. C. K. Dunsterville.

petiole up to 9 cm. long and 1.5 cm. wide. Inflorescence lateral, 1 to few, 1-flowered. Peduncle somewhat compressed, completely enclosed by imbricating, membranaceous, acuminate sheaths, up to 3 cm. long. Flowers yellowish green. Sepals more or less similar, linear-lanceolate to linear-triangular, acuminate; dorsal sepal up to 19 mm. long; lateral sepals oblique, up to 22 mm. long. Petals linear-falcate, up to 17 mm. long. Lip from a cuneate base obscurely 3-lobed; lateral lobes round, midlobe narrowly triangular, acuminate; disc from base to middle provided with a linear callus; whole lip up to 15 mm. long and 6 mm. wide. Column stout, cylindric, basally extended into a long column-foot.

Flowers during April and May.

General Distribution: Endemic in the Lesser Antilles.

Distribution in Lesser Antilles: Guadeloupe!.

Maxillaria inflexa (Lindl.) Griseb., Fl. Br. W. Ind. Isl. 626, 1864; Cogn. in Urb., Symb. Antill. 6: 606, 1910; Hodge in Lloydia 17: 219, 1954.

Basionym: *Camaridium inflexum* Lindl. in Ann. Nat. Hist. 5: 116, 1840.
Type: Dominica, without proper locality. Coll. Henslow s.n.! (K–L).

Syn.: *Ornithidium croceorubens* Rchb. f. in Linnaea 41: 35, 1876; Cogn. in Urb., Symb. Antill. 6: 610, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 234, 1939.
Maxillaria croceorubens (Rchb. f.) L. O. Wms. in Caldasia 1, no. 5: 16, 1942; Hodge in Lloydia 17: 219, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 391, 1956.
Type: Haiti, Mount Morne-à-Cul. Coll. L. C. Richard s.n.! (W).

Epiphytic, rhizomatous plants. Stem scandent, occasionally branching, completely enclosed by imbricating papery sheaths, leaf-bearing at terminal growth, up to 30 cm. long. Pseudobulbs remote, ovoid, somewhat compressed, up to 2 cm. long, 1-leaved. Leaves oblong-elliptic, obtuse, basally contracted into a conduplicate up to 6 mm.-long petiole, including the petiole up to 11 cm. long and 12 mm. wide, commonly smaller. Inflorescence fasciculate, axillary, long-pedunculate, from current year's growth, 1-flowered. Flowers orange-red, ringent. Sepals similar, ovate-lanceolate, dorsally finely muriculate, acuminate, up to 10 mm. long. Petals ovate-elliptic, acuminate, dorsally finely muriculate, up to 10 mm. long. Lip 3-lobed, lateral lobes erect, subfalcate with more or less denticulate margins, midlobe ovate to suborbicular, porrect, obtuse or rounded in front, indistinctly emarginate; disc at junction of lateral lobes and midlobe provided with a muriculate cushion-like swelling; whole lip up to 7 mm. long. Pedicellate ovary rostrate.

Flowers from October to February.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Grenada!.

Maxillaria meridensis Lindl., Orch. Linden. 19, no. 100, 1846; Stehlé, Fl. Descr. Antill. Fr. 1: 225, 1939. — **Fig.** 69.

Type: Venezuela, near Merida. Coll. Linden s.n.! (K–L).

Epiphytic plants with erect or ascending rhizomes completely enclosed by rough, arpophyllaceous, tubular sheaths. Pseudobulbs remote, linear-cylindric, completely hidden and enclosed in the sheaths, 1-leaved, up to 2 cm. long. Leaves linear, variable in length, up to 25 cm. long, commonly shorter. Inflorescence axillary, solitary, 1-flowered. Flowers pale yellow or yellow-brown with reddish suffusion. Dorsal sepal linear-oblong to oblong-lanceolate, acute, up to·27 mm. long; lateral sepals obliquely triangular-lanceolate, acuminate, up to 30 mm. long. Petals linear-lanceolate to linear-subfalcate, acuminate, up to 24 mm. long. Lip elliptic in outline, distinctly 3-lobed in front, sessile; lateral lobes erect, with acute apex; midlobe very fleshy, ovate to triangular-ovate, longer than lateral lobes; disc from base to junction of midlobe and lateral lobes provided with a ligular, obtuse callus; whole lip up to 15 mm. long. Column arcuate, clavate, about 5 mm. long.

Flowers from December through June.

General Distribution: Venezuela, Colombia, Ecuador, Peru and Bolivia.

Distribution in Lesser Antilles: Guadeloupe!.

Observation: Although the specimens we have seen were supposedly collected in the wild, it is most probable that they have escaped from cultivation.

IONOPSIS Humboldt, Bonpland & Kunth

Ionopsis H.B.K., Nov. Gen. et Sp. Pl. 1: 348, 1816.

Sepals and petals similar, connivent; lateral sepals connate at base forming a gibbous mentum. Lip much larger than the other floral segments, attached to base of column; disc with two calli. Column fleshy, short, slightly arcuate, provided with a distinct foot. Anther incumbent, 2-celled. Pollinia 2, waxy, on a distinct linear stipe. Pedicellate ovary cylindric.

Epiphytic plants with more or less developed rhizome. Roots fleshy, glabrous. Stem pseudobulbous, concealed by leaf-bearing sheaths. Leaves coriaceous, distichous. Inflorescence lateral from base of pseudobulbs, long-pedunculate, racemose or paniculate, lax, few- to many-flowered. Bracts inconspicuous, much shorter than the pedicellate ovaries. Flowers delicate, mostly showy.

Type: *Ionopsis pulchella* H.B.K. [H.B.K., Nov. Gen. et Sp. Pl. 1: 348 1816].

Genus of about 12 species distributed throughout tropical and subtropical America.

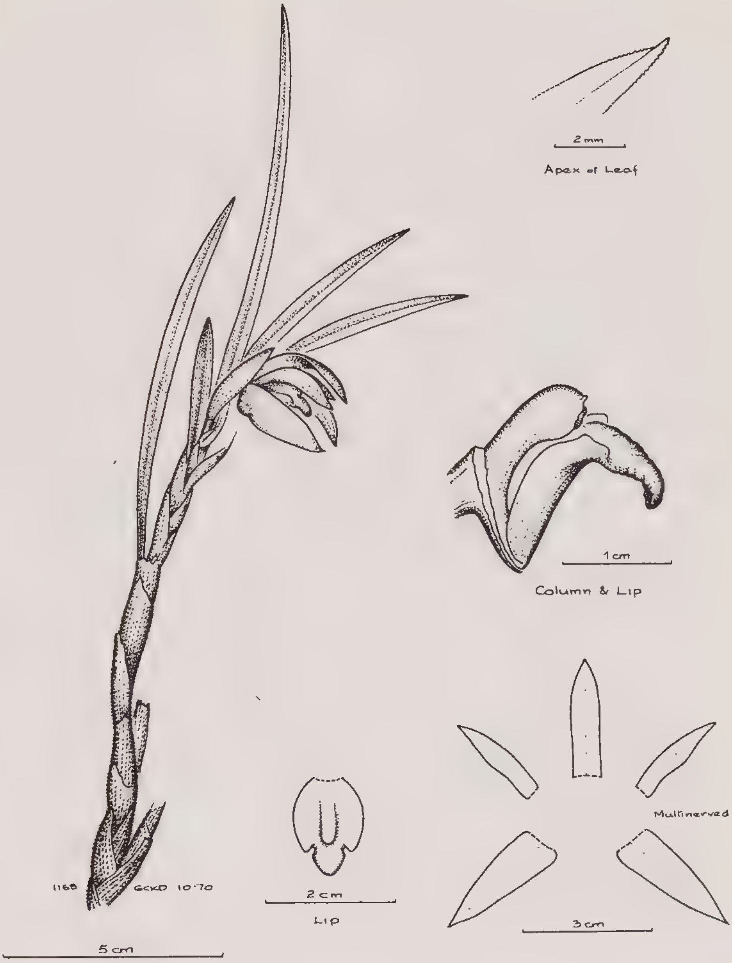


FIGURE 69. *Maxillaria meridensis* Lindl. Drawn by G. C. K. Dunsterville.

Key to Species

1. Plants large with conspicuous inflorescences, leaves flat, linear-ligulate; lip bilobed in front .... *I. utricularioides*

1a. Plants small with inconspicuous inflorescences; leaves terete to subcylindric; lip entire, truncate in front .... *I. satyrioides*

Ionopsis satyrioides (Sw.) Rchb. f. in Walp. Ann. Bot. Syst. 6: 683, 1863; Cogn. in Urb., Symb. Antill. 6: 624, 1910. — **Fig. 70.**

Basionym: *Epidendrum satyrioides* Sw., Nov. Gen. & Sp. Pl., Prodr. 123, 1788.
Lectotype: Jamaica, without proper locality. Coll. Swartz s.n.! (BM, S).

Epiphytic, caespitose, up to 14 cm. tall. Pseudobulbs cylindric, short to almost nil, 1-leaved, completely enclosed by imbricating leaf-sheaths. Leaves fleshy, terete to subcylindric, acute, up to 8 cm. long. Inflorescence lateral, erect to arcuate; peduncle filiform, racemose above, occasionally subpaniculate with short branches, few-flowered. Flowers white with violet veins. Dorsal sepal lanceolate to oblong-lanceolate, acute, basally up to 1.5 mm. connate with lateral sepals, up to 5.5 mm. long. Lateral sepals connate to 1/3rd basally, lanceolate, gibbose, acute, up to 6 mm. long. Petals oblong-elliptic, acute to subacuminate, up to 5.5 mm. long. Lip with a short claw, narrowly cuneate-flabellate with a subtruncate apex; disc basally provided with a bifurcate, fleshy callus; whole lip up to 5.5 mm. long. Pedicellate ovary slender, up to 6 mm. long.

Flowers in March.

General Distribution: Greater Antilles, Trinidad, northern South America.

Distribution in Lesser Antilles: Martinique, Mont Parnasse. Coll. Hahn no. 770! (P); Pont de l'Alma. Coll. Stehlé no. 4080! (AMES).

Ionopsis utricularioides (Sw.) Lindl., Coll. Bot. t. 39A, 1826; Rolfe in Kew Bull. 278, 1893; Duss in Ann. Inst. Col. Marseille 3: 601, 1897; Cogn. in Urb., Symb. Antill. 6: 622, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 236, 1939. — **Fig. 71.**

Basionym: *Epidendrum utricularioides* Sw., Nov. Gen. & Sp. Pl., Prodr. 122, 1788.
Lectotype: Jamaica, without proper locality. Coll. Swartz s.n.! (BM, S).

Epiphytic plants, up to 60 cm. tall. Rhizome ascending, densely covered with roots. Pseudobulb ovoid, 1-leaved. Leaves coriaceous or fleshy, narrowly oblong or linear-ligulate, acute or acuminate, canaliculate at base, up to 16 cm. long and 1.5 cm. wide. Inflorescence lax, many-flowered, either a simple raceme or a well-developed panicle. Bracts small, triangular to lanceolate, much shorter than the pedicellate ovaries. Flowers delicate, white, pale rose or white with lilac stripes, scented. Sepals oblong-ligulate

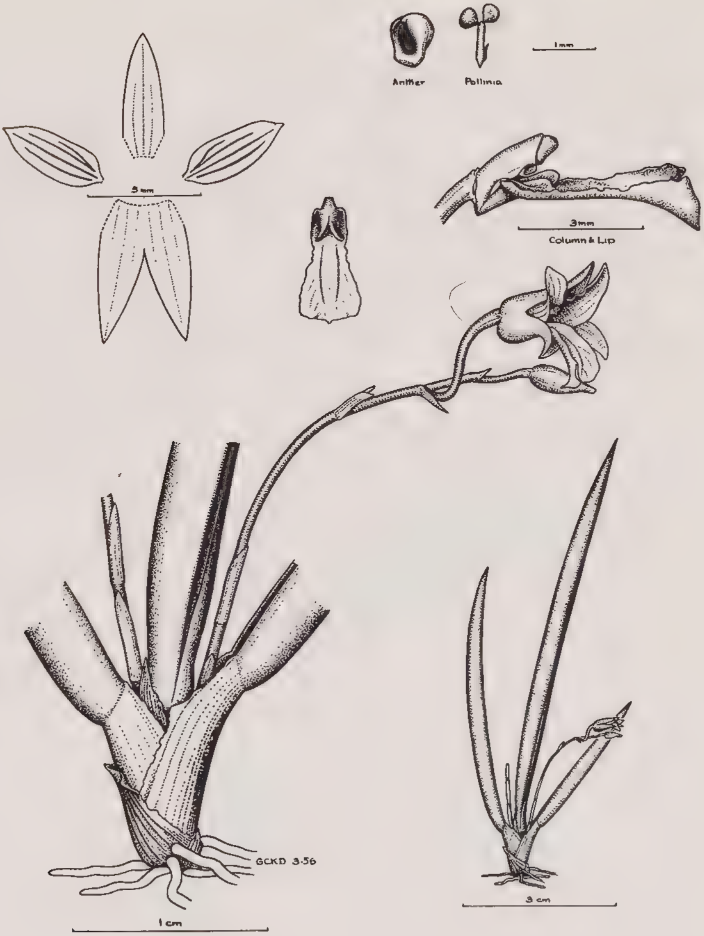


FIGURE 70. *Ionopsis satyrioides* (Sw.) Rchb. f.
Drawn by G. C. K. Dunsterville.

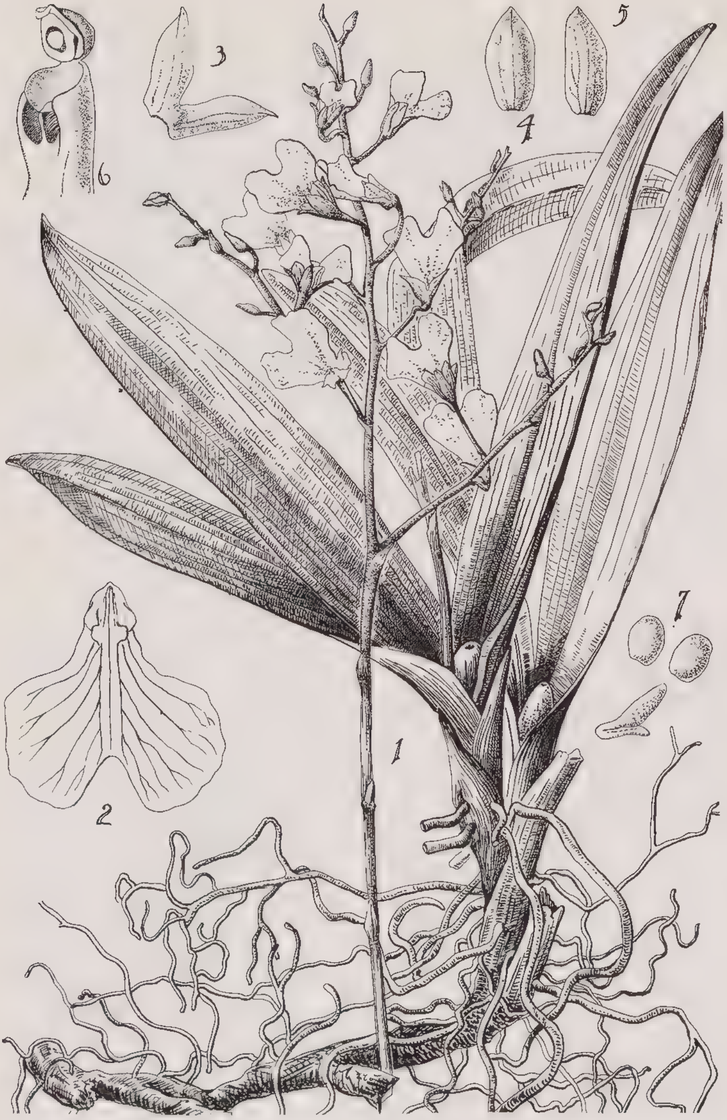


FIGURE 71. *Ionopsis utricularioides* (Sw.) Lindl. 1, plant. 2, lip. 3, lateral sepals. 4, petal. 5, dorsal sepal. 6. column. 7, pollinia and stipe. Redrawn from Blanche Ames Ames by G. W. Dillon.

to ovate-lanceolate, acute; lateral sepals slightly connate basally, gibbous, up to 6 mm. long and 2 mm. wide. Petals ovate-oblong, acute or obtuse, rarely apiculate, up to 6 mm. long and 3.5 mm. wide. Lip from a cuneate base abruptly dilated into a suborbicular lamina, deeply bilobed in front; the cuneate base often biauriculate with rounded lobes; disc bilamellate at base; whole lip up to 12 mm. long and wide. Column short, fleshy, 2 mm. long. Pedicellate ovary cylindric, up to 12 mm. long.

Flowers from March to October.

GENERAL DISTRIBUTION: Throughout the American tropics and subtropics.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!.

RODRIGUEZIA Ruíz & Pavón

Rodriguezia Ruíz & Pav., Fl. Peru. & Chile., Prodr., 115, 1794.

Dorsal sepal free, often deeply concave, suberect; lateral sepals connate, navicular, gibbose at base. Petals free, usually larger than sepals. Lip firmly adnate or continuous with base of column, blade commonly exceeding the rest of the floral segments, usually wider at apex than at base where it is extended in a short, solid spur. Column cylindric, footless, apically bibrachiate. Anther terminal, operculate, incumbent, 1-celled, often galeate. Pollinia 2, waxy on rather slender stipe with a distinct gland. Stigmata confluent under rostellum.

Epiphytic, rhizomatous herbs. Pseudobulbs distinct, 1- or 2-leaved at apex, basally commonly surrounded by distichous, leaf-bearing sheaths. Leaves conduplicate, fleshy to coriaceous. Inflorescence lateral, pedunculate, racemose, laxly or subdensely few- to many-flowered. Flowers small to conspicuous.

LECTOTYPE: *Rodriguezia lanceolata* Ruíz & Pav. [Garay & Sweet in Journ. Arnold Arb. 53: 527, 1972].

Approximately 30 species in tropical America.

Rodriguezia lanceolata Ruíz & Pav., Syst. Fl. Peru. et Chil. 1: 219, 1798. — **Fig. 72.**

Type: Peru, without proper locality. Coll. Pavón s.n.! Herb. Reichenbach no. 24774 (w).

Syn.. *Rodriguezia secunda* H. B. K., Nov. Gen. et Sp. 1: 367, 1816; Cogn. in Urb., Symb. Antill. 6: 620, 1910.
Type: Colombia, near Carthago. Coll. Humboldt no. 1875! (P).

Plants epiphytic, rhizomatous, up to 25 cm. tall. Pseudobulbs remote, 1-leaved, ovoid, commonly concealed by several pairs of distichous leaf-

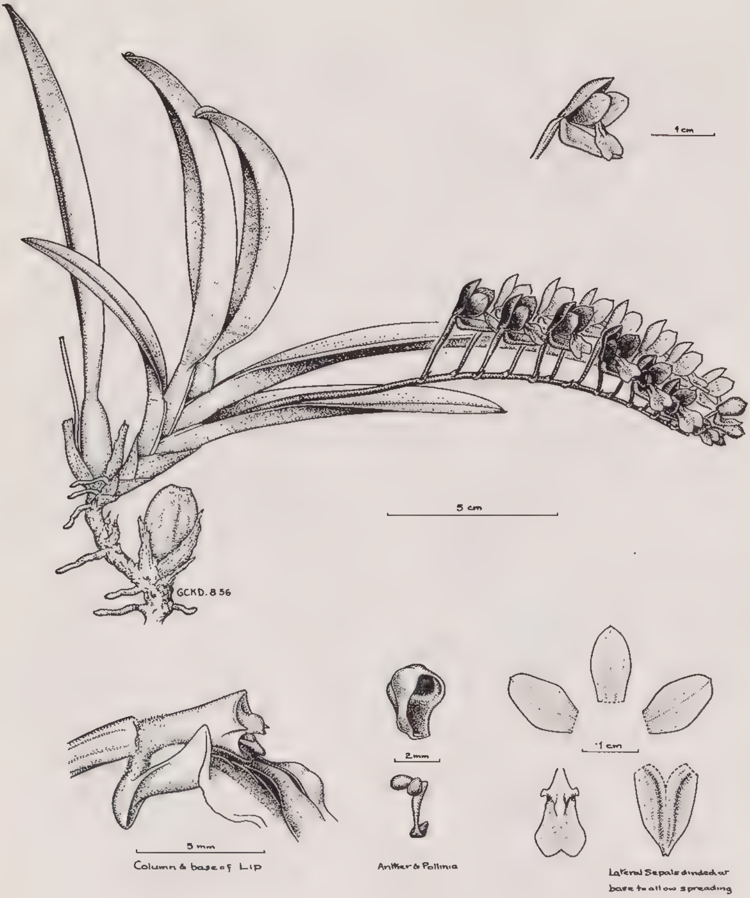


FIGURE 72. *Rodriguezia lanceolata* Ruíz & Pav. Drawn by G. C. K. Dunsterville.

sheaths. Leaves rigid, coriaceous, conduplicate, arcuate, elliptic-oblong to ligulate, acute or obtuse, with a complicate base, up to 23 cm. long and 3 cm. wide, commonly smaller and narrower. Inflorescence axillary, more or less longer than the leaves, rarely shorter, pedunculate, loosely to subdensely racemose above. Flowers rose-purple, commonly secund. Bracts ovate-triangular, acute, much smaller than pedicellate ovary. Dorsal sepal ovate-elliptic, cucullate, obtuse, up to 14 mm. long. Lateral sepals connate to bidentate apex, navicular, more or less saccate at base, up to 16 mm. long. Petals elliptic, somewhat oblique, obtuse to subapiculate, up to 14 mm. long. Lip from a cuneate base obovate in outline, recurved at basal third, pandurate with dilated bilobed apex, basally produced into a short curved solid spur; disc bilamellate in middle; whole lip up to 16 mm. long. Column terete, abruptly dilated at apex with a pair of short triangular-linear ascending arms, up to 3.5 mm. long. Pedicellate ovary up to 2 cm. long.

Flowers from December to June.

General Distribution: Panama, tropical South America, Greater Antilles, Trinidad, Tobago.

Distribution in Lesser Antilles: St. Vincent!.

Observation: An examination of the holotype of *Rodriguezia lanceolata* Ruíz & Pav. convinces us that the commonly known *Rodriguezia secunda* H. B. K. is identical with it.

LEOCHILUS Knowles & Westcott

Leochilus Knowl. & Westc., Fl. Cab. 2: 143, 1838.

Sepals and petals free, more or less similar; lateral sepals usually partially connate and gibbous. Lip firmly adnate to base of column, entire or rarely lobed, porrect or more or less reflexed, somewhat larger than the other floral segments, gibbose at base; disc variously callose. Column short, erect, commonly with a pair of arms, stelidia in the middle below the stigma. Clinandrium very low. Anther terminal, operculate, 1-celled, commonly rostrate. Pollinia 2, globose, waxy on long, slender stipe with a small gland. Stigmata confluent under the prominent, elongate rostellum.

Epiphytic herbs, with or without distinct rhizomes. Pseudobulbs small, globose, more or less compressed, ancipitous, 1- to 2-leaved, enclosed by 2 to 3 leaf-bearing sheaths. Inflorescence rather slender, erect, lateral, racemose above, or rarely paniculate, loosely few- to many-flowered. Flowers rather small.

Type: *Leochilus oncidioides* Knowl. & Westc. [Knowl. & Westc., Fl. Cab. 2: 143, 1838].

Approximately 15 species in Central America, West Indies and northern South America.

Leochilus labiatus (Sw.) O. Ktze., Rev. Gen. Pl. 2: 656, 1891; Cogn. in Urb., Symb. Antill. 6: 662, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 254, 1939; Hodge in Lloydia 17: 221, 1954. — **Fig. 73.**

Basionym: *Epidendrum labiatum* Sw., Nov. Gen. & Sp. Pl., Prodr. 124, 1788.
Type: Jamaica, without proper locality. Coll. Swartz s.n.! (UPS, S).

Syn.: *Rodriguezia cochlearis* Lindl. in Ann. Nat. Hist. 5: 116, 1840; Rolfe in Kew Bull. 278, 1893.
Type: Dominica, without proper locality. Coll. Henslow s.n.! (K–L).

Epiphytic, caespitose plants, up to 12 cm. tall. Pseudobulbs ovoid to subrotund, laterally compressed, enclosed by 2–3 leaf-bearing sheaths, 1-leaved, up to 1 cm. long. Leaves elliptic-oblong, obtuse, somewhat unequally bilobed at apex, sessile, up to 5 cm. long. Inflorescence lateral, rather slender, erect; peduncle remotely 3-bracteolate, terminated by a simple raceme or occasionally subpaniculate. Rachis few-flowered. Flowers pale brown with dark maroon spots. Dorsal sepals and petals similar, more or less spreading, ovate, acute to obtuse, up to 5.5 mm. long. Lateral sepals similar, connate to middle, with a gibbous base, acute or obtuse, up to 6 mm. long. Lip elliptic in outline, reflexed, with an emarginate apex, basally excavate, gibbous, with a tumor-like callus inside surrounded by rather slender hairs; disc fleshy, towards gibbous base produced in a free, retrorse, emarginate cushion-like callus; whole lip up to 8 mm. long. Column short with 2 distinct arms in middle. Pedicellate ovary up to 6 mm. long.

Flowers from March to June.

General Distribution: Central America, Greater Antilles, Trinidad, Tobago, Venezuela.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

ONCIDIUM Swartz

Oncidium Sw. in Vet. Akad. Handl. Stockh. 21: 239, 1800.

Sepals free, subequal, spreading or reflexed, often with a distinct claw; lateral sepals occasionally more or less connate, rarely up to the bifid apex. Petals spreading, quite similar to dorsal sepal or proportionately larger. Lip sessile or with a short claw, adnate to base of column at a right angle, entire or 3-lobed, commonly pandurate; basal lobes spreading or reflexed, terminal lobe transverse, rounded or bilobed in front; disc callose or tuberculate at base, rarely carinate. Column short, stout, without a foot, either marginate on both sides of the stigmatic cavity or with variously developed, often petaloid auricles. Clinandrium shallow, somewhat oblique. Anther terminal, operculate, incumbent, 1-celled or obscurely 2-celled. Pollinia 2, waxy on distinct, elongate stipes with a small gland. Rostellum well-developed, occasionally quite elongate. Stigmata 2, confluent under the rostellum.

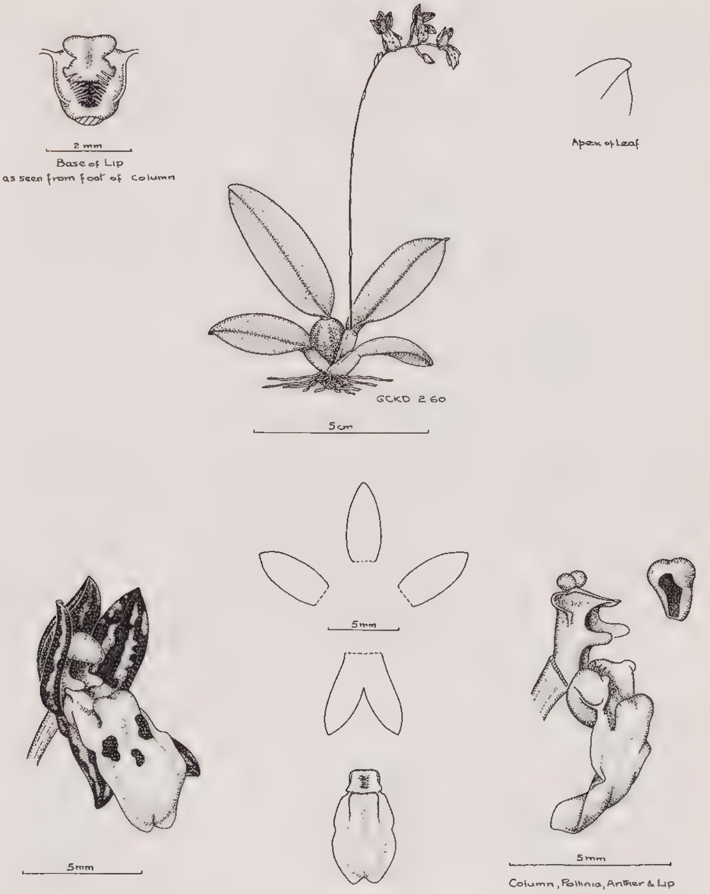


FIGURE 73. *Leochilus labiatus* (Sw.) O. Ktze. Drawn by G. C. K. Dunsterville.

Epiphytic, caespitose or rhizomatous herbs. Pseudobulbs often compressed or ancipitous, 1- to 3-leaved. Leaves coriaceous or fleshy. Inflorescence pedunculate, racemose or paniculate, loosely many-flowered. Flowers commonly small.

Lectotype: *Epidendrum variegatum* Sw. [Garay in Taxon 19: 444, 1970].

Approximately 350 species in tropical and subtropical America.

Key to Species

1. Entire inflorescence, including peduncle and rachis winged; lip entire, cordate to cordate-triangular . . . . *O. meirax*

1a. Entire inflorescence, terete, wingless; lip lobed with a transverse apical part 2

2. Leaves with distinct, flat blades 3

2a. Leaves equitant or terete 6

3. Pseudobulbs rudimentary, cylindric, up to 1.5 cm. long; sepals and petals suborbicular or broadly elliptic . . . . *O. altissimum*

3a. Pseudobulbs well-developed, laterally compressed, at least 8–12 cm. long; sepals and petals ovate to ovate-lanceolate or narrowly elliptic 4

4. Peduncle remotely several-sheathed; sheath much shorter than internodes; lip with a subquadrate base, twice as wide at apex as at base 5

4a. Peduncle subdensely several-sheathed; sheath as long as or slightly shorter than internodes; lip cuneately pandurate, as wide at apex as at base . . . . *O. picturatum*

5. Inflorescence with acutely spreading, elongate branches, giving the appearance of a diffuse panicle; branches several-flowered . . . . . . *O. Wydleri*

5a. Inflorescence with rectangularly spreading, very short branches, giving the appearance of a loosely-flowered, cylindric raceme; branches 2- to 3-flowered . . . . *O. Jacquinianum*

6. Leaves linear-terete, up to 40 cm. long; lateral sepals free; column with reniform-falcate auricles . . . . *O. Cebolleta*

6a. Leaves equitant, linear-falcate, up to 15 cm. long; lateral sepals connate to a bifid apex; column with large ovate to subrotund auricles 7

7. Lip with an entire isthmus; calli of lip superimposed, equal in size, each bilobed; auricles of column subrotund . . . . *O. urophyllum*

7a. Lip with a denticulate isthmus; calli of lip superimposed, unequal in size, the posterior larger, each 3-lobed; auricles of column ovate-falcate, acute . . . . *O. Leiboldii*

Oncidium altissimum (Jacq.) Sw. in Kongl. Vetensk. Acad. Handl. 21: 240, 1800, not of other authors. — **Fig. 74.**

Basionym: *Epidendrum altissimum* Jacq., Enum. Syst. Pl. 30, 1760, based on *Viscum radice bulbosa majus & elatius, delphinii flore ferrugineo guttato*, Sloane, Hist. Jamaica 1: 250, t. 148, f. 1, 1707, not Jacq., Select. Stirp. Amer. Hist. 229, t. 141, 1763; not Jacq., Select. Stirp. Amer. Hist. ed. icon. arch. pict. 110, t. 215, 1781.

Type: Jamaica, without proper locality. Coll. Sloane s.n.! (BM).

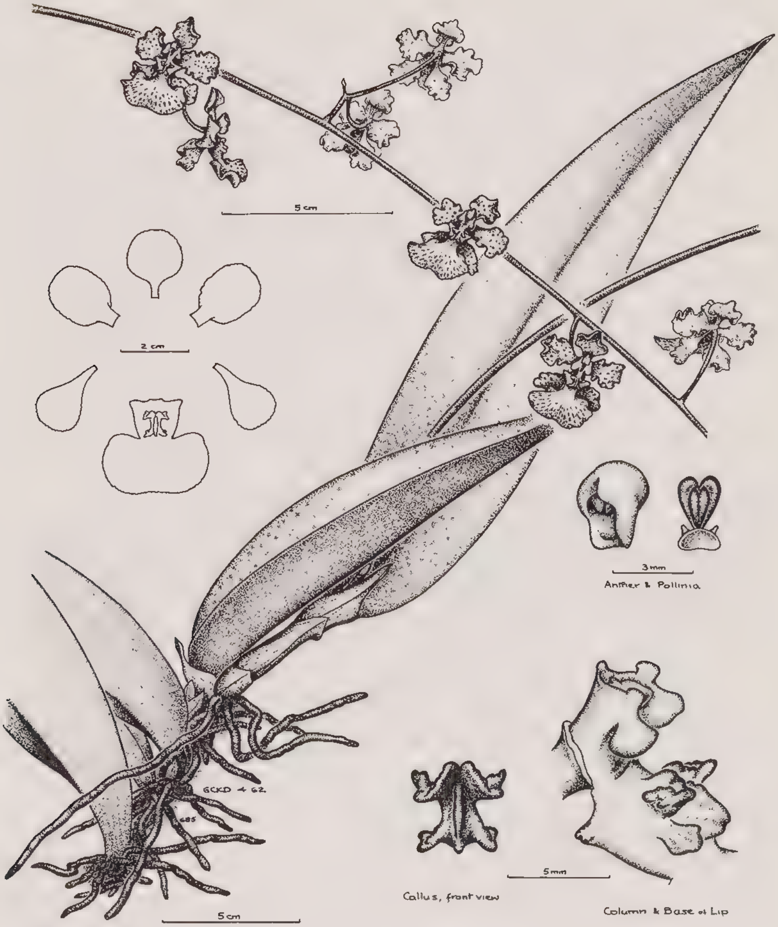


FIGURE 74. *Oncidium altissimum* (Jacq.) Sw. Drawn by G. C. K. Dunsterville.

Syn.: *Epidendrum maculatum* Aubl., Hist. Pl. Guin. Fr. 2: 825, 1775, based on *Helleborine maculosa, foliis aloës carinatis*, Plum. Cat. 9, 1703 and Icon. Burm. t. 178, f. 2, 1759, not *Oncidium maculatum* Lindl., 1841.

Epidendrum crispum Lam., Encycl. 1: 186, 1783, not *Oncidium crispum* Lodd., 1832.

Oncidium maculatum (Aubl.) Urb. in Fedde Rep. 15: 306, 1918, not *Oncidium maculatum* Lindl., 1841.

Type: St. Vincent, without proper locality. Coll. Plumier s.n. (P). Holotype is Plumier's original drawing.

Oncidium luridum Lindl. in Bot. Reg. 9: t. 727, 1823; Rolfe in Kew Bull. 278, 1893; Duss in Ann. Inst. Col. Marseille 3: 600, 1897; Hodge in Lloydia 17: 221, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 391, 1956.

Oncidium guttatum Rchb. f. in Walp. Ann. Bot. Syst. 6: 782, 1863, *excl. syn.*; Cogn. in Urb., Symb. Antill. 6: 647, 1910; Kraenzlin in Pflanzenr. IV. 50, Heft 80: 33, 1922; Stehlé, Fl. Descr. Antill. Fr. 1: 248, 1939.

Type: Introduced from South America and cultivated by Griffin s.n.! (K–L).

Epiphytic, rhizomatous, robust plants, up to 2 meters tall. Pseudobulbs rudimentary, cylindric, up to 1.5 cm. long, 1-leaved. Leaves coriaceous, oblong-elliptic to oblong-lanceolate, acute to subacuminate, basally complicate, up to 50 cm. long and 8 cm. wide. Inflorescence lateral, erect, long-pedunculate, terminated by a loosely-branching, many-flowered panicle, branches spreading, relatively short, 4- to 6-flowered. Bracts ovate-lanceolate, acuminate, up to 5 mm. long. Flowers rather showy, yellow, densely spotted with cinnamon-red. Sepals and petals free, distinctly clawed, more or less suborbicular to broadly elliptic, obtuse with undulate margins, up to 2 cm. long, petals somewhat shorter. Lip 3-lobed; lateral lobes small, round, ear-like, obtuse with revolute margins; midlobe separated by a short broad isthmus, suborbicular to reniform in outline, rounded in front and distinctly excised in middle; disc basally provided with a callus of 5 fleshy tuberculate lobes. Column short, stout, up to 5 mm. long, with a pair of bilobulate wings at apex. Pedicellate ovary up to 3 cm. long.

Flowers from December to June.

GENERAL DISTRIBUTION: Florida, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

OBSERVATION: When Jacquin described *Epidendrum altissimum* in 1760, his description was based on Sloane's illustration in Hist. Jamaica 1: t. 148, f. 1. Three years later, in 1763, in Select. Stirp. Amer. Hist. t. 141, Jacquin again described as well as illustrated an entirely different plant under the same name of *Epidendrum altissimum*. An examination of

Sloane's original material in the British Museum has shown it to represent the plant commonly known as *Oncidium luridum* Lindl. For those specimens which have been identified with the aid of Jacquin's plate of 1763 as *"Oncidium altissimum,"* the correct name is *Oncidium Wydleri* Rchb. f. This plate, however, is quite misleading for it includes only fragments of Jacquin's original drawing. The actual specimen upon which Jacquin based his drawing is in the British Museum of Natural History, and an examination has shown it to be a distinct species which is included here under *Oncidium Jacquinianum* Garay & Stacy.

Oncidium Cebolleta (Jacq.) Sw. in Kongl. Vetensk. Acad. Handl. 21: 240, 1800; Duss in Ann. Inst. Col. Marseille 3: 599, 1897; Cogn. in Urb., Symb. Antill. 6: 659, 1910; Kraenzlin in Pflanzenr. IV. 50, Heft 80: 91, 1922; Stehlé, Fl. Descr. Antill. Fr. 1: 253, 1939. — **Fig. 75.**

Basionym: *Epidendrum Cebolleta* Jacq., Enum. Syst. Pl. 30, 1760; Select. Stirp. Amer. Hist. ed. icon arch. pict. 111, t. 217, 1781.

Type: Martinique, without proper locality. Coll. Jacquin s.n. No specimen is known to us. Holotype is Jacquin's original illustration of which a reproduction represents a complete specimen is cited above.

Epiphytic, caespitose plants up to 70 cm. tall. Pseudobulbs very short, rudimentary, cylindric, up to 1 cm. long, 1-leaved. Leaves linear-terete, slender, erect or somewhat arcuate, up to 40 cm. long. Inflorescence lateral; peduncle erect, remotely few-articulate, terminated by a loosely few- to many-flowered raceme or panicle. Bracts triangular, acute up to 2 mm. long. Flowers yellow spotted with brown. Sepals and petals spreading, similar, from a cuneate base spathulate to obovate-spathulate, more or less undulate, rounded at apex, up to 10 mm. long; lateral sepals rarely up to 12 mm. long. Lip 3-lobed; lateral lobes ascending or spreading, oblong-linear to obovate, rounded or obtuse, separated from midlobe by a long narrow isthmus; midlobe transverse, reniform, deeply bilobed in front, with the lobes more or less diverging; disc basally provided with a 3-lobed callus, median lobe of which is long-ligulate, there are additional small tubercles on each side, especially along the veins; whole lip up to 15 mm. long and 15 mm. wide across median lobe. Column short, up to 3 mm. long, at apex provided with two prominent reniform-falcate auricles on both sides of the stigma. Pedicellate ovary up to 2 cm. long.

Flowers from April to November.

General Distribution: Throughout tropical America.

Distribution in Lesser Antilles: Guadeloupe!, Martinique!, St. Lucia!, Bequia!.

Observation: The specimen in the Banksian herbarium reported to be *Oncidium ascendens* Lindl. from St. Lucia is based on a misidentification.

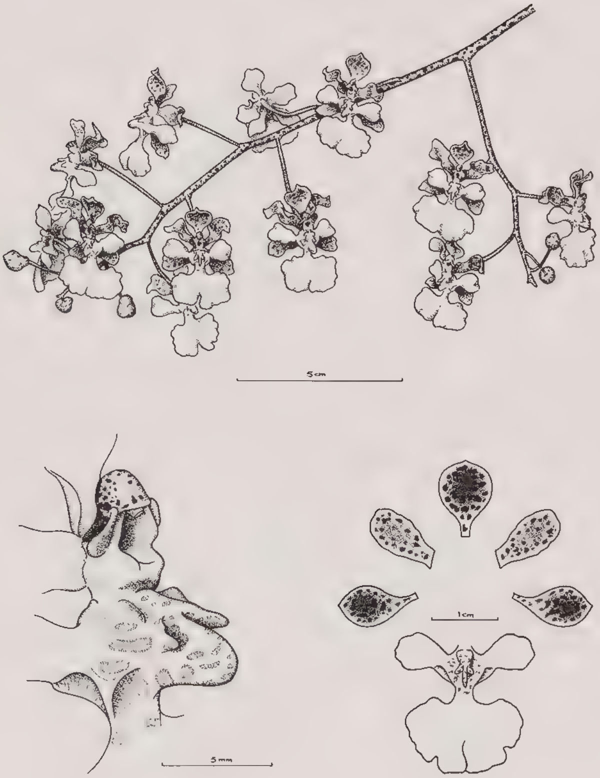


FIGURE 75. *Oncidium Cebolleta* (Jacq.) Sw. Drawn by G. C. K. Dunsterville.

Oncidium Jacquinianum Garay & Stacy in Bradea 1: 407, 1974.— Fig. 76.

Basionym: *Epidendrum altissimum* Jacq., Select. Stirp. Amer. 229, t. 141, 1763, *excl. syn.*, not Jacquin 1760.
Type: Martinique, without proper locality. Coll. Jacquin s.n.! (BM).

Epiphytic, caespitose plants, up to 30 cm. tall. Pseudobulbs aggregate, subglobose to ovoid, compressed, 1-, rarely 2-leaved up to 10 cm. long. Leaves chartaceous, oblong-ligulate, acute, up to 20 cm. long and 3 cm. wide. Inflorescence lateral, arcuately pendent, with short 2- to 3-flowered branches, giving the impression of a loosely-flowered, cylindric raceme, up to 3 meters long. Bracts glumaceous, cymbiform, up to 15 mm. long. Flowers yellowish green with dark maroon blotches on sepals and petals; lip deep yellow with a solid maroon blotch near isthmus. Sepals and petals spreading, more or less fleshy, carinate dorsally, lanceolate-elliptic, acute to subacuminate, clawed, margins crispate; sepals 18 mm. long and 5 mm. wide; petals 15 mm. long and 5 mm. wide. Lip sessile, subquadrate at base, minutely auriculate, divergingly bilobed in front with an obscure mucro in center, lobes suborbicular; disc at base provided with a multidactylate crest, 12 mm. long and 10 mm. wide near apex. Column slightly arcuate with small, crenate auricles on sides of stigma, 5 mm. long. Pedicellate ovary 2–3 cm. long.

Flowers from March to May.

General Distribution: Endemic in the Lesser Antilles.

Distribution in Lesser Antilles: Martinique!, St. Vincent!.

Oncidium Leiboldii Rchb. f. in Walp. Ann. Bot. Syst. 6: 718, 1863; Cogn. in Urb., Symb. Antill. 6: 658, 1910; Kraenzlin in Pflanzenr. IV. 50, Heft 80: 105, 1922.

Type: Cuba, without proper locality. Coll. Leibold no. 5290! Herb. Reichenbach f. no. 17285 (W).

Epiphytic with short wiry ascending rhizomes up to 30 cm. long. Leaves equitant, laterally compressed, linear-falcate, acuminate, with a distinct groove on inner edge where the margin is erose-denticulate, up to 5 cm. long. Inflorescence erect, wiry, long-pedunculate, loosely racemose above, occasionally subpaniculate. Flowers rather thin in texture, white to pale rose. Dorsal sepal cuneate-obovate to subspathulate, dorsally carinate, obtuse to rounded, up to 5 mm. long. Lateral sepals similar to dorsal sepal, connate to bilobed apex, up to 5 mm. long. Petals from a cuneate base obovate-pandurate, truncate to retuse at apex, minutely puberulent, up to 7 mm. long. Lip 3-lobed; lateral lobes triangular, obtuse to rounded, cuneately tapering to a distinct denticulate isthmus; midlobe transverse, oblong-reniform, deeply bilobed in front, undulate around margins; disc with whole surface minutely puberulent, at base provided with a pair of superimposed calli, unequal in size, the posterior being larger, each 3-

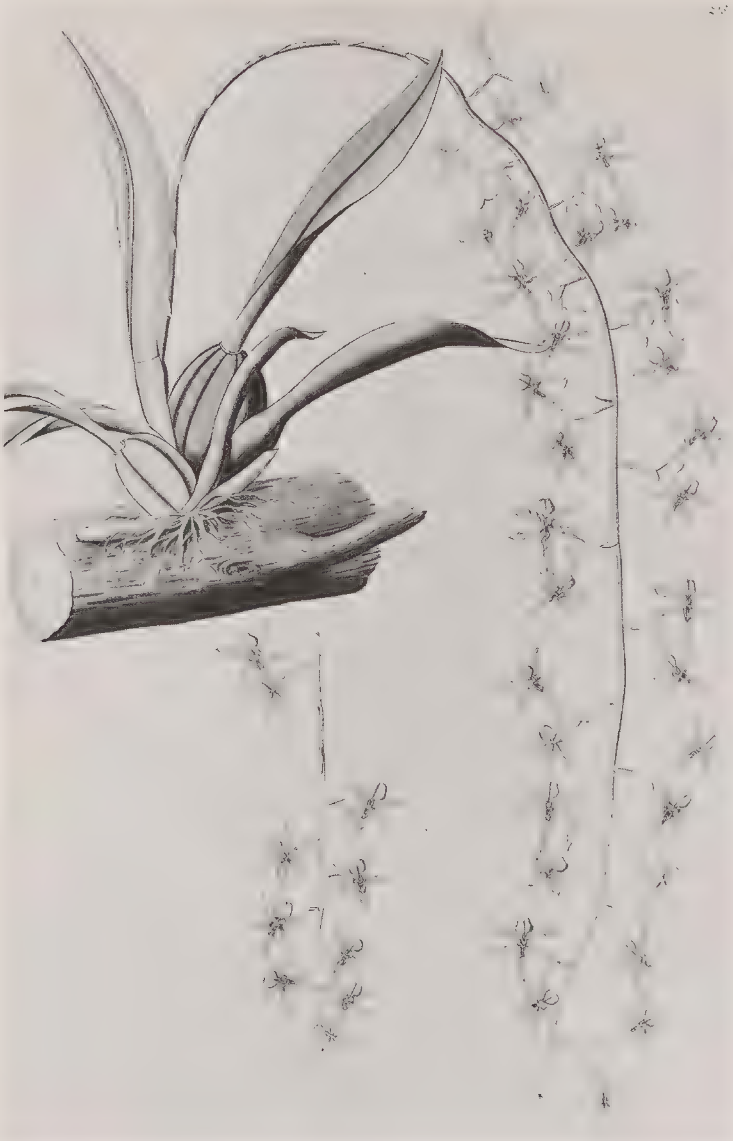


FIGURE 76. *Oncidium Jacquinianum* Garay & Stacy. Drawn by N. J. Jacquin.

lobed; whole lip up to 8 mm. long and 15 mm. wide across midlobe. Column short with ovate-falcate, acute auricles. Pedicellate ovary up to 15 mm. long.

Flowers from March to May and from October to December.

General Distribution: Bahamas, Greater Antilles, Brazil.

Distribution in Lesser Antilles: St. Martin!, Saba!, St. Eustatius!, Martinique!.

Observation: Specimens referable to this species have been listed in the literature of the Lesser Antilles under *Oncidium variegatum* Sw. and *O. velutinum* Lindl.

Oncidium meirax Rchb. f. in Bonpl. 2: 12, 1854; Kraenzlin in Pflanzenr. IV. 50, Heft 80: 210, 1922. — **Fig. 77.**

Type: Venezuela, Caracas. Coll. Wagener no. 34! Herb. Reichenbach no. 5059 (w).

Syn.: *Oncidium alatum* Cogn. in Urb., Symb. Antill. 6: 642, 1910; Kraenzlin in Pflanzenr. IV. 50, Heft 80: 211, 1922; Stehlé, Fl. Descr. Antill. Fr. 1: 241, 1939.
Lectotype: Puerto Rico, near Roncador. Coll. Sintenis no. 6566! (br).

Epiphytic, rhizomatous plants up to 20 cm. tall. Rhizome short, erect. Pseudobulb remote, up to 2 cm. apart, erect, ovoid, laterally compressed, 1-leaved, up to 2 cm. long. Leaves fleshy, lanceolate to lanceolate-elliptic, acute, basally complicate with a short petiole, including petiole up to 7 cm. long. Inflorescences 1–2, erect, paniculate; peduncle and rachis compressed, winged throughout, branches short, somewhat flexous, 1-flowered. Flowers with spreading segments, yellow with maroon markings, produced in succession. Sepals and petals similar, linear-spathulate to oblanceolate-spathulate; dorsal sepal up to 10 mm. long; lateral sepals up to 12 mm. long; petals up to 8 mm. long. Lip sessile, cordate to cordate-triangular in outline, acute in front, disc provided at base with a distinctly 3-lobed callus, in front of which there are 3 additional papillae; whole lip up to 8 mm. long. Column erect, cylindric, with distinct but shallow auricles in middle. Pedicellate ovary angular, often twisted, up to 2 cm. long.

Flowers from January to July.

General Distribution: Greater Antilles, Venezuela, Colombia, Ecuador, Peru.

Distribution in Lesser Antilles: Guadeloupe!.

Oncidium picturatum Rchb. f. in Bonpl. 2: 13, 1854; Kraenzlin in Pflanzenr. IV. 50, Heft 80: 265, 1922.

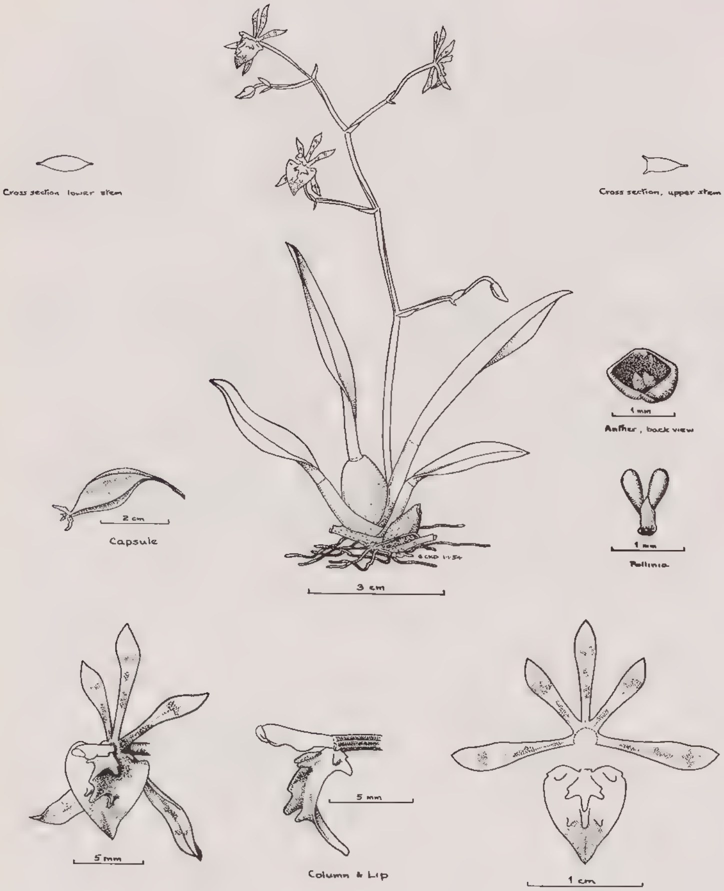


FIGURE 77. *Oncidium meirax* Rchb. f. Drawn by G. C. K. Dunsterville.

Type: Venezuela, Caracas. Coll. Wagener s.n.! Herb. Reichenbach no. 48301 (W).

Epiphytic, robust, caespitose plants up to 1.5 meters tall. Pseudobulbs ovoid to elliptic, laterally and strongly compressed, ancipitous, 2- to 3-leaved, up to 12 cm. long. Leaves fleshy to subcoriaceous, oblong-ligulate, acute to subacuminate, up to 50 cm. long and 5 cm. wide. Inflorescence robust, lateral; peduncle suberect to arcuate, subdensely covered with papery sheaths as long as or slightly shorter than the internodes, terminated by a loosely many-flowered panicle, branches racemose, several-flowered. Bracts glumaceous, cymbiform, up to 15 mm. long, commonly shorter. Flowers yellow mottled with brown-purple; lip yellow with a brown-purple spot in front of the column, similar to those of *Oncidium Wydleri.* Sepals and petals more or less reflexed, similar, from a cuneate base ovate-elliptic to ovate-lanceolate, acute, undulate. Dorsal sepal up to 18 mm. long; lateral sepals up to 18 mm. long, carinate dorsally; petals up to 16 mm. long. Lip sessile, distinctly cuneately pandurate, basal lobes large, round, terminal lobe transversely reniform, bilobed in front; disc provided with a 3-lobed callus with additional two lobes on each side, the terminal lobe is long-linear; whole lip up to 16 mm. long, as wide at base as at apex. Column short, stout, up to 4 mm. long, with truncate 3 mm.-long wings on both sides of stigma. Pedicellate ovary up to 3 cm. long.

Flowers from March to May.

GENERAL DISTRIBUTION: Venezuela, Colombia.

DISTRIBUTION IN LESSER ANTILLES: Dominica, Pegoua River, near Deux Branches, Concorde Valley. Coll. Hodge no. 3475! (AMES); Lisdara. Coll. Hodge no. 2490! (AMES).

Oncidium urophyllum Lodd. ex Lindl., Sert. Orch. sub t. 48, no. 90, 1841; Cogn. in Urb., Symb. Antill. 6: 653, 1910; Kraenzlin in Pflanzenr. IV. 50, Heft 80: 101, 1922; Hodge in Lloydia 17: 221, 1954.

Type: Assumed to be from Brazil. Introduced and cultivated by Loddiges no. 824! (K–L).

Epiphytic, caespitose plants up to 70 cm. tall. Pseudobulbs rudimentary, ovoid to subcylindric, up to 2 cm. long, completely enclosed by distichously arranged equitant leaves. Leaves laterally compressed, channeled and 2-edged with the edges more or less irregularly papillose-serrate, linear-falcate to linear, acuminate, basally articulate with leaf-sheaths, up to 15 cm. long. Inflorescence lateral; peduncle rather slender, remotely several-jointed terminated by a simple raceme or a loosely few-branched panicle; branches loosely few-flowered. Bracts small, ovate-lanceolate, up to 2 mm. long. Flowers yellow with small reddish brown markings on petals and base of lip, lip a darker shade on the upper surface. Dorsal sepal erect, linear-oblanceolate, acute or subacuminate, up to 5 mm. long.

Lateral sepals connate to a bidentate apex, linear-ligulate, up to 5 mm. long. Petals from a cuneate base oblong-obovate to subspathulate, with truncate apex, occasionally apiculate, rarely subpandurate in middle, up to 6 mm. long. Lip 3-lobed; lateral lobes diverging, oblong-linear, rounded, separated from midlobe by a narrow isthmus; midlobe transverse elliptic to subcordate-reniform, with somewhat undulate margins, whole upper surface minutely puberulous; disc provided with a set of superimposed calli, each of which is bilobed and diverging at apex; whole lip up to 16 mm. long. Column rather slender, short, up to 3 mm. long, on both sides of stigma at apex provided with large, subrotund wings or auricles. Pedicellate ovary filiform, up to 2 cm. long.

Flowers from March through June.

General Distribution: Endemic in Lesser Antilles.

Distribution in Lesser Antilles: St. Barts!, St. Eustatius!, Montserrat!, Barbuda!, Nevis!, Antigua!, Guadeloupe!, Dominica!, La Desirade!.

Observation: Specimens referable to this species have been reported in the literature from the Lesser Antilles as *Oncidium intermedium* Bert. ex Spreng., *O. variegatum* Sw., *O sylvestre* Lindl., *O. tetrapetalum* (Jacq.) Willd. and *O. velutinum* Lindl.

Oncidium Wydleri Rchb. f. in Ber. Deutsch. Bot. Gesellsch. 3: 276, 1885; Kraenzlin in Pflanzenr. IV. 50, Heft 80: 258, 1922.

Syn.: *Oncidium altissimum auct.* not Sw. in Kongl. Vetensk. Acad. Handl. 21: 240, 1800; Cogn. in Urb., Symb. Antill. 6: 643, 1910; Kraenzlin in Pflanzenr. IV. 50, Heft 80: 255, 1922; Stehlé, Fl. Descr. Antill. Fr. 1: 244, 1939; Hodge in Lloydia 17: 211, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 391, 1956.

Type: Puerto Rico, without proper locality. Coll. Leman s.n.! Herb. Reichenbach no. 49300 (w).

Epiphytic, caespitose plants, up to 1.5 meters tall. Pseudobulbs ovoid, compressed, 1-, rarely 2-leaved, up to 10 cm. long. Leaves fleshy, oblong-ligulate, acute, up to 40 cm. long and 5 cm. wide. Inflorescence lateral, erect; peduncle remotely several sheathed, sheaths much shorter than the internodes, terminated by a loosely-branching panicle; branches loosely few-flowered. Bracts glumaceous, cymbiform, up to 1.5 cm. long. Flowers yellowish green with brown-purple spots and markings. Lip yellow with brown-purple spot in front of callus. Sepals and petals similar, spreading, from a cuneate base narrowly elliptic, undulate-crispate, acute to subacuminate; dorsal sepal up to 2 cm. long; lateral sepals up to 2.2 cm. long; petals up to 1.8 cm. long and somewhat wider than the sepals. Lip sessile, basal part subquadrate, with a small ear-like lobe on each side, terminal part transverse-elliptic to reniform, emarginate to more or less bilobed in front; disc from base to middle provided with a 3-parted callus in front of which there are an additional 5 digits; whole lip up to 1.5 cm. long, twice as wide at apex as the base. Column short, stout, with an elongate, truncate, undulate, up to 3 mm.-long wings on both sides of the stigma; whole column up to 6 mm. long. Pedicellate ovary up to 3 cm. long.

Flowers from March through May.

General Distribution: Greater Antilles.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Observation: We consider that the figure in Botanical Magazine 57: t. 2990, 1830 represents this species.

This species has been confused with *Oncidium Baueri* Lindl. We have not seen any specimen referable to *Oncidium Baueri* from the Lesser Antilles.

ORNITHOCEPHALUS Hooker

Ornithocephalus Hook., Exot. Fl. 2: t. 127, 1824.

Sepals similar, free, more or less spreading or reflexed; dorsal sepal often cucullate. Petals similar to sepals, spreading, often larger. Lip continuous with base of column, entire or lobed, basally callose-thickened, inflexed in front. Column short, without wings or foot. Clinandrium more or less prominent. Anther terminal, operculate, incumbent, imperfectly 2-celled, distinctly rostrate. Pollinia 4, waxy, on slender stipe with small gland. Stigmata transverse, confluent under the long, prominent slender rostellum.

Epiphytic plants without pseudobulbs. Stem very short, completely enclosed by distichously imbricating leaf-sheaths. Leaves fleshy, equitant, articulate with leaf-sheaths, arranged in form of a fan. Inflorescence axillary, loosely racemose, few- to several-flowered. Flowers small.

Type: *Ornithocephalus gladiatus* Hook. [Hook., Exot. Fl. 2: t. 127, 1824].

About 50 species native to the New World tropics.

Ornithocephalus gladiatus Hook., Exot. Fl. 2: t. 127, 1824; Cogn. in Urb., Symb. Antill. 6: 632, 1910; Schultes in Amer. Orch. Soc. Bull. 25: 391, 1956. — **Fig. 78.**

Type: Trinidad, without proper locality. Coll. De Schack s.n.! (K).

Epiphytic, small plants without pseudobulbs. Leaves fleshy, arranged in one plane in the shape of a fan, equitant, obliquely linear-oblanceolate, acute or subacuminate, tapering towards base, articulate with leaf-sheaths,

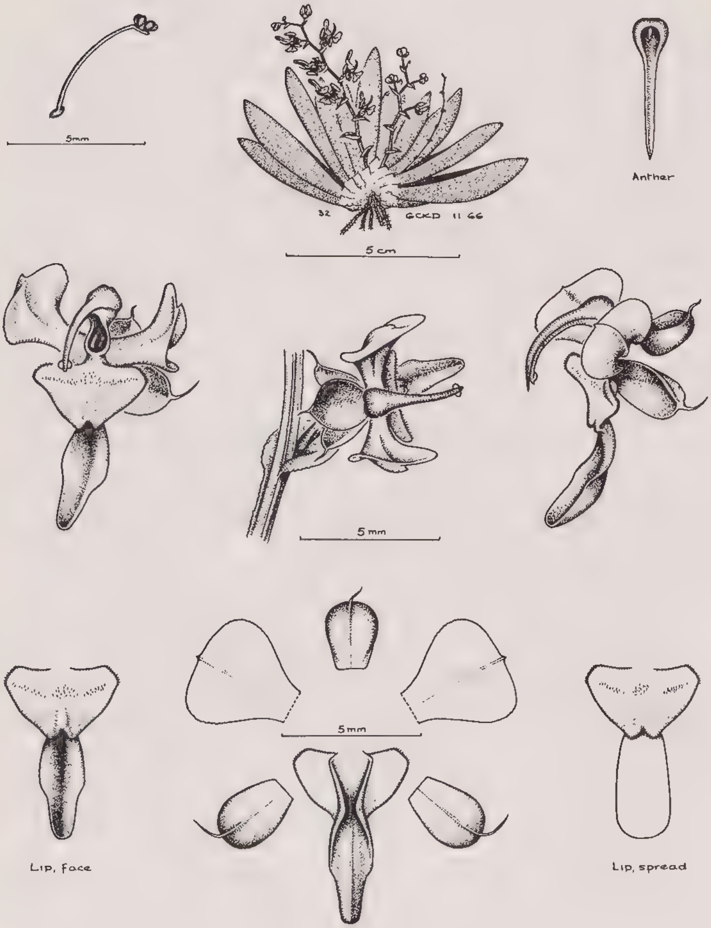


FIGURE 78. *Ornithocephalus gladiatus* Hook. Drawn by G. C. K. Dunsterville.

up to 4.5 cm. long. Inflorescences one to several, usually produced in succession, axillary, erect to arcuate, short pedunculate, loosely racemose above. Flowers greenish white to greenish yellow with spreading segments, rather large for the size of the plant. Sepals similar, obovate, obtuse, dorsally carinate, terminating in a sharp, often quite prominent mucro, up to 3 mm. long. Petals spathulate with a more or less truncate apex, carinate dorsally, up to 4 mm. long. Lip hastate in outline, 3-lobed; lateral lobes fleshy, united in a triangular plate excised in middle; midlobe linear-oblong with revolute margins, acute, rarely linear-acuminate; whole lip up to 6 mm. long. Pedicellate ovary up to 5 mm. long.

Flowers from March through May.

General Distribution: Trinidad, northern South America.

Distribution in Lesser Antilles: Grenada!.

DICHAEA Lindley

Dichaea Lindl., Gen. and Sp. Orch. Pl. 208, 1833.

Sepals and petals free, subequal, ringent; lateral sepals more or less oblique. Lip adnate to base of column, from a more or less cuneate base anchor-shaped, the lobes when developed, retrorse; disc glabrous or with calli. Column short, cylindric, basally extended in a short, descending foot. Anther terminal, incumbent, imperfectly 2-celled. Pollinia 4 in 2 pairs on a distinct stipe with a small viscid gland. Stigmata confluent, large under the short, erect rostellum, basally extended into a hirsute, porrect ligule.

Epiphytic, erect or pendent, monopodial plants. Stem compressed, entirely enclosed by imbricating leaf-sheaths. Leaves sessile, persistent or deciduous, small to large, often mucronate. Inflorescence sessile or pedunculate, one-flowered, axillary. Flowers small.

Type: *Epidendrum echinocarpum* Sw. [Lindl. in Bot. Reg. 18: sub t 1530, 1832].

Approximately 50 species native to the American tropics.

Key to Species

1. Leaves deciduous; ovary glabrous; base of lip cuneate, elongate . . . . *D. Hookeri*

1a. Leaves persistent; ovary echinate; base of lip otherwise 2

2. Plants small; leaves lanceolate with ciliolate margins; lip with distinct calli at base . . . . *D. hystricina*

2a. Plants large; leaves oblong-elliptic to ligulate, eciliolate; lip without calli at base 3

3. Leaves thin, sharply mucronate, up to 3 cm. long; lip more or less rhomboid . . . . *D. Swartzii*

3a. Leaves fleshy, retuse-mucronate, up to 1.5 cm. long; lip triangular-anchor-shaped . . . . *D. muricata*

Dichaea Hookeri Garay & Sweet in Journ. Arnold Arb. 53: 395, 1972. — **Fig. 79.**

Type: Dominica, moist forests bordering Pegoua river in the vicinity of Deux Branches, Concorde Valley. Coll. Hodge no. 3481! (AMES).

Epiphytic, caespitose herbs up to 15 cm. tall. Stems erect to pendent, compressed, completely enclosed by imbricating leaf-bases. Leaves deciduous, length of leaves very uneven on stem, articulate, oblong-ligulate to linear-oblong, acute, indistinctly mucronate, the upper edge under lens finely papillose-ciliolate, up to 2.5 cm. long and 6 mm. wide. Inflorescence axillary, 1-flowered. Flowers small, ringent, greenish to greenish yellow. Dorsal sepal ovate-lanceolate, acuminate, up to 5 mm. long and 2.5 mm. wide. Lateral sepals oblique, ovate-lanceolate, acuminate, up to 6 mm. long and 3 mm. wide. Petals lanceolate-elliptic, acuminate, up to 4.5 mm. long and 2.5 mm. wide. Lip from a cuneate base anchor-shaped with retrorse acuminate lobes, rounded in front with a small inconspicuous apicule in middle, up to 5 mm. long and 5 mm. wide when spread. Column cylindric. Ovary sessile, glabrous.

Flowers from March to July.

GENERAL DISTRIBUTION: Venezuela, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Mateliane. Coll. Stehlé no. 456! (AMES); Saralle. Coll. Questal no. 4735! (P); without proper locality. Coll. L'Herminer s.n.! (P); Hauteurs de Goyave. Coll. Stehlé no. 961! (AMES, NY). Dominica, La Chaudiere, Hampstead river. Coll. Hodge no. 3509! (AMES). St. Vincent, without proper locality. Coll. Guilding s.n.! (K).

OBSERVATION: Specimens referable to this species have been erroneously reported in the literature from the Lesser Antilles as *Dichaea Cogniauxiana* Schltr., *D. graminoides* (Sw.) Lindl., *D. picta* Rchb. f. and *D. Rendlei* Gleason. The first illustration of this species appeared in Hooker, Exotic Flora 3: t. 196, 1826, as *Isochilus graminoides* (Sw.) Lindl. This was an incorrect identification and it was based on a collection from Trinidad.

Dichaea hystricina Rchb. f. in Flora 48: 279, 1865; Cogn. in Urb., Symb. Antill. 6: 672, 1910; Kraenzlin in Pflanzenr. IV. 50, Heft 83: 35, 1923; Stehlé, Fl. Descr. Antill. Fr. 1: 261, 1939; Hodge in Lloydia 17: 223, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 387, 1956. — **Fig. 80.**

Type: Cuba, Monte Verde. Coll. Wright no. 1487! (AMES, K, W).

Epiphytic, caespitose herbs. Stems compressed, erect to pendent, dense-

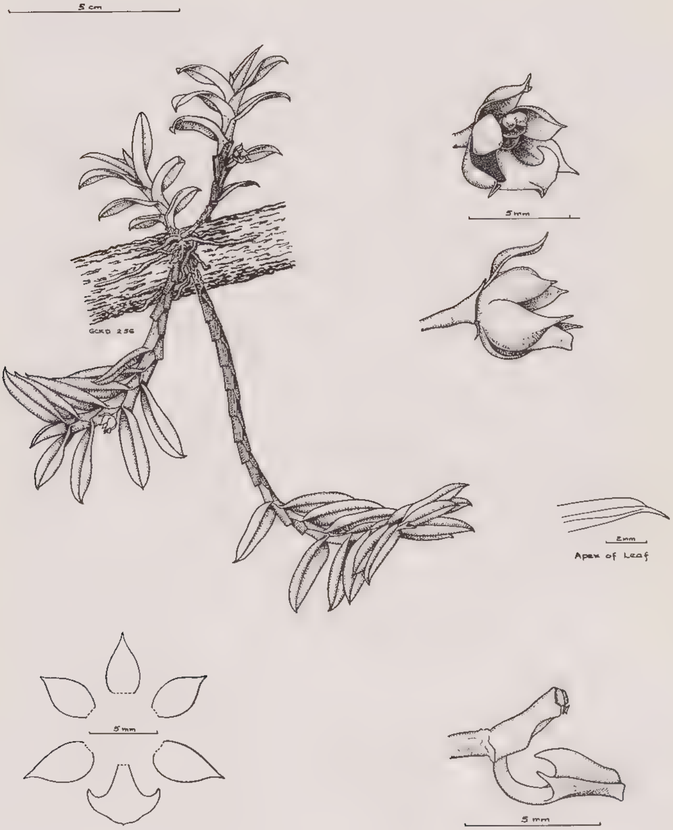


FIGURE 79. *Dichaea Hookeri* Garay & Sweet. Drawn by G. C. K. Dunsterville.

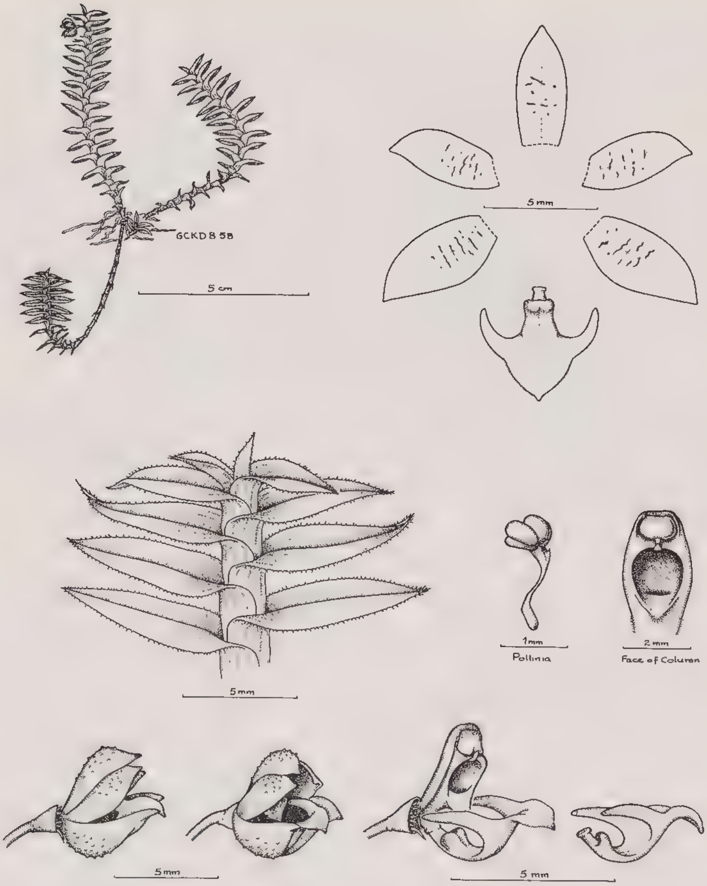


FIGURE 80. *Dichaea hystricina* Rchb. f. Drawn by G. C. K. Dunsterville.

ly covered by imbricating leaf-bases, up to 15 cm. long. Leaves persistent, lanceolate, acute to subacuminate with ciliolate margins throughout, up to 10 mm. long and 2 mm. wide. Inflorescence axillary, 1-flowered. Flowers small, ringent, pale green with purple spots. Dorsal sepal oblong-elliptic, acute, dorsally papillose, up to 5.5 mm. long and 2.5 mm. wide. Lateral sepals obliquely elliptic, acute, up to 5.5 mm. long and 3 mm. wide. Petals oblong-elliptic with subfalcate, acute tips, up to 5 mm. long and 2 mm. wide. Lip with distinct claw, triangular-anchor-shaped with linear-falcate retrorse lobes, terminal portion recurved with finely ciliolate margins; disc at base with a double subquadrate cushion-like callus. Column short. Ovary sessile, finely echinulate.

Flowers more or less throughout the year.

General Distribution: Central America, Greater Antilles, northern South America.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Grenada!.

Dichaea muricata (Sw.) Lindl., Gen. and Sp. Orch. Pl. 209, 1833; Rolfe in Kew Bull. 278, 1893; Cogn. in Urb., Symb. Antill. 6:671, 1910; Kraenzlin in Pflanzenr. IV. 50, Heft 83: 37, 1923; Stehlé, Fl. Descr. Antill. Fr. 1: 263, 1939; Hodge in Lloydia 17: 223, 1954; Schultes in Amer. Orch. Soc. Bull. 25: 387, 1956. — **Fig. 81.**

Basionym: *Cymbidium muricatum* Sw. in Nov. Act. Soc. Sci. Upsala 6: 71, 1799.
Type: Jamaica, without proper locality. Coll. Swartz s.n.! (s).

Syn.: *Dichaea latifolia* Lindl., Gen. and Sp. Orch. Pl. 208, 1833.
Dichaea muricata var. *latifolia* (Lindl.) Griseb., Fl. Brit. W. Ind. Isl. 624, 1864.
Type: St. Vincent, without proper locality. Coll. Guilding s.n.! (k).

Epiphytic, caespitose herbs. Stems pendent, compressed, completely covered by imbricating leaf-bases, up to 50 cm. long. Leaves fleshy, persistent, oblong-elliptic to elliptic, obtuse or rounded, more or less retuse, mucronulate, up to 1.5 cm. long and 8 mm. wide. Inflorescence 1-flowered, axillary, distinctly pedunculate. Peduncle spreading, up to 1.5 cm. long. Flowers small, ringent, greenish with bronze suffusion and occasionally with few purple spots, especially on the petals; nerves often discolored. Dorsal sepal lanceolate-elliptic, acute, up to 9 mm. long and 4 mm. wide. Lateral sepals obliquely lanceolate-elliptic, acuminate, up to 8 mm. long and 3.5 mm. wide. Petals linear-oblong to oblong-lanceolate, up to 8 mm. long and 3 mm. wide. Lip triangular-anchor-shaped with subfalcate-linear retrorse lobes, acute in front, basally subquadrate; whole lip up to 8 mm. long and 8 mm. wide when spread. Ovary sessile, echinate.

Flowers more or less throughout the year.

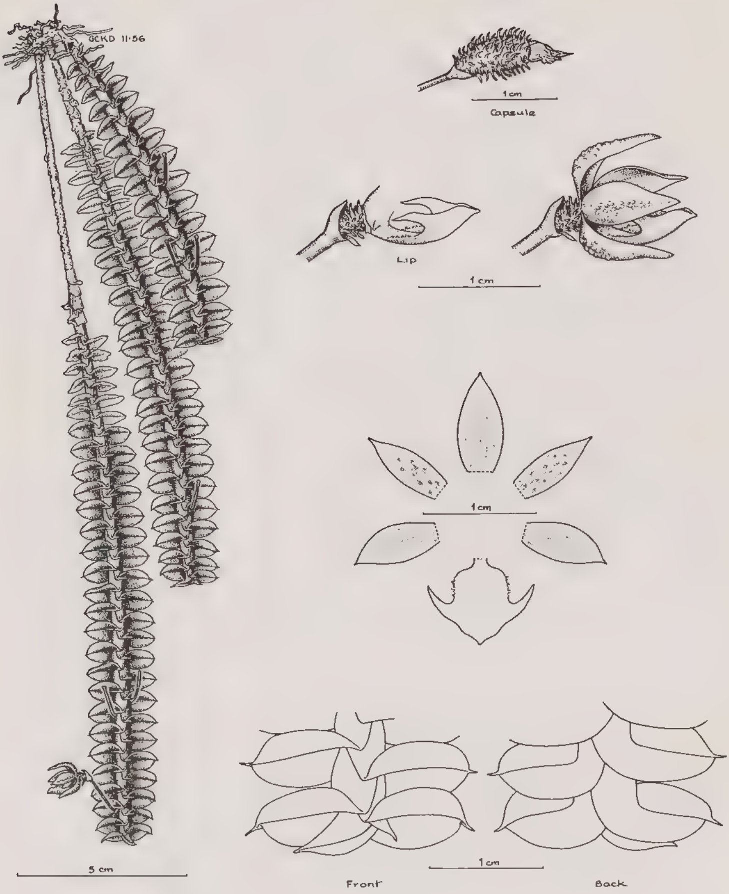


FIGURE 81. *Dichaea muricata* (Sw.) Lindl. Drawn by G. C. K. Dunsterville.

General Distribution: Throughout the American tropics.

Distribution in Lesser Antilles: Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

Dichaea Swartzii (C. Schweinf.) Garay & Sweet in Journ. Arnold Arb. 53: 397, 1972. — **Fig. 82.**

Basionym: *Dichaea pendula* var. *Swartzii* C. Schweinf in Bot. Mus. Leafl. Harv. Univ. 17: 62, 1955.

Syn.: *Epidendrum echinocarpon* Sw., Nov. Gen. & Sp. Pl., Prodr. 124, 1788, *nom. illeg*, excl. syn.

Cymbidium echninocarpum (Sw.) Willd., Sp. Pl. 4: 95, 1888.

Dichaea echninocarpa (Sw.) Lindl., Gen. and Sp. Orch. Pl. 208, 1833, *nom. illeg.*, excl. syn.; Duss in Ann. Inst. Col. Marseille 3: 596, 1897.

Type: Jamaica, without proper locality. Coll. Swartz s.n.! (BM, S).

Epiphytic, pendent plants. Stem compressed to ancipitous, entirely covered by quite densely imbricating leaf-sheaths, up to 60 cm. long. Leaves rather thin in texture, horizontally spreading, persistent, oblong-ligulate to oblong-elliptic, acute or subacuminate with a sharply mucronate tip, basally complicate, up to 3 cm. long. Inflorescence 1-flowered; peduncle slender, up to 1.5 cm. long. Flowers yellowish. Sepals similar, more or less spreading, oblong-ovate to ovate-elliptic, acute, dorsally muricate, up to 9 mm. long. Petals obovate to oblanceolate, up to 8 mm. long. Lip fleshy, cymbiform, more or less rhomboid in outline, obtusely angulate on both sides without retrorse lobes, more or less rounded in front, up to 7 mm. long. Column cylindric with a prominent infrastigmatic ligule. Ovary echinate

Flowers from May to November.

General Distribution: Greater Antilles, Venezuela, Colombia.

Distribution in Lesser Antilles: Guadeloupe, vicinity of Bains Chauds de Matouba. Coll. Proctor no. 20359! (AMES). Martinique, Morne Calbasse, Morne Rouge. Coll. Proctor no. 21774 a! (AMES).

Observation: Specimens referable to this species have been listed by Cogniaux and Stehlé under *Dichaea pendula* (Aubl.) Cogn. We find that the type of Swartz's *Epidendrum echinocarpon* and Aublet's *Epidendrum pendulum* represent two distinct species. Hence, Swartz's illegitimate name needs a new epithet.

CAMPYLOCENTRUM Bentham

Campylocentrum Benth. in Journ. Linn. Soc. Bot. 18: 337, 1881.

Sepals and petals free, more or less similar, connivent with spreading apices. Lip free, adnate to base of column, entire or lobed, basally produced in a distinct spur. Column very short, fleshy without wings and

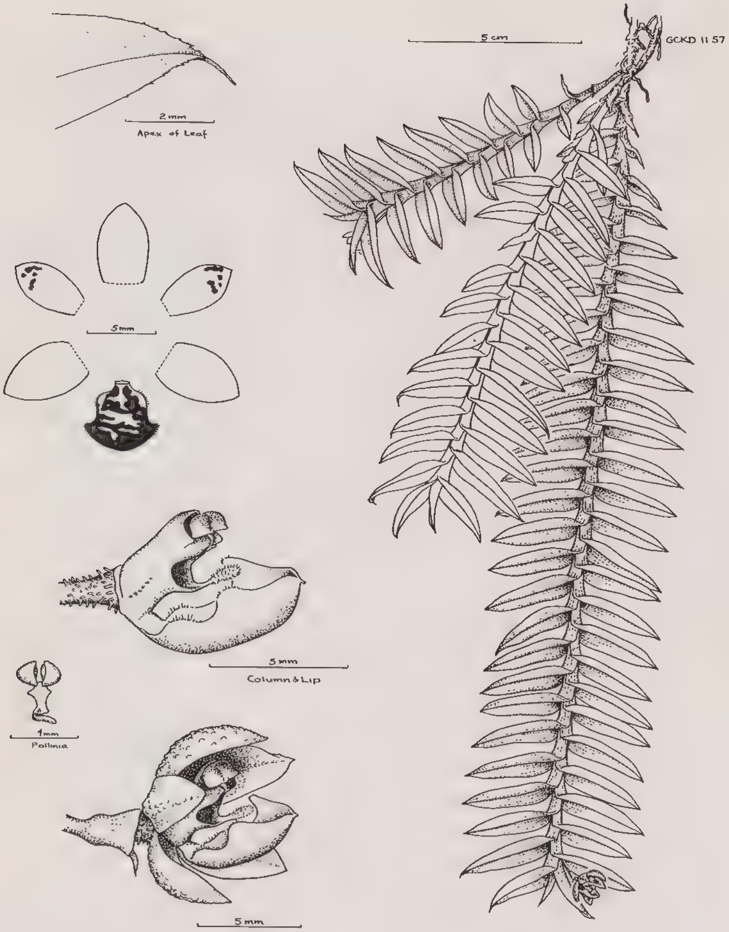


FIGURE 82. *Dichaea Swartzii* (C. Schweinf.) Garay & Sweet.
Drawn by G. C. K. Dunsterville.

column-foot. Clinandrium more or less prominent, obliquely truncate. Anther terminal, operculate, incumbent, 2-celled. Pollinia 2, globose, waxy, on either connate or separate, filiform stipes. Stigmata confluent under rostellum.

Epiphytic, monopodial herbs. Stem either elongate or much reduced, leafy or leafless. Leaves fleshy, deciduous. Inflorescences axillary, racemose, loosely or densely few- to many-flowered. Flowers mostly small to minute.

Type: *Todaroa micrantha* Rich. & Gal. [Benth. in Journ. Linn. Soc. Bot. 18:337, 1881].

About 30 species native to the tropics and subtropics of the New World.

Key to Species

1. Plants large; inflorescence shorter than leaves; sepals up to 4.5 mm. long; lip 3-lobed .... *C. micranthum*

1a. Plants minute; inflorescence longer than leaves; sepals up to 1.5 mm. long; lip entire .... *C. pygmaeum*

Campylocentrum micranthum (Lindl.) Rolfe in Orch. Rev. 9: 236, 1901; Cogn. in Urb., Symb. Antill. 6: 682, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 267, 1939. — **Fig. 83.**

Basionym: *Angraecum micranthum* Lindl. in Bot. Reg. 21: t. 1772, 1835.
Type: Jamaica, without proper locality. Introduced, erroneously attributed to Sierra Leone, and cultivated by Loddiges s.n.! (K–L).

Epiphytic, monopodial plants, more or less pendent, occasionally branched, up to 40 cm. long. Stems more or less flexuous. Leaves coriaceous, spreading, obliquely oblong-ligulate or elliptic-oblong, obtuse at subequal apex, articulate with leaf-sheaths, up to 10 cm. long. Inflorescence spicate, shorter than leaves, distinctly pedunculate, densely many-flowered. Flowers white, rather small. Sepals and petals similar, connivent with spreading apices, oblong-ligulate to narrowly oblong-elliptic, up to 4.5 mm. long. Lip 3-lobed; lateral lobes erect, semi-ovate, acute; midlobe ligular, acute; base of lip produced into a distinct clavate, more or less arcuate spur; blade of lip up to 3.5 mm. long. Spur up to 3 mm. long. Ovary sessile, about 1 mm. long.

Flowers from June to October.

General Distribution: Throughout the American tropics.

Distribution in Lesser Antilles: Guadeloupe!.

Camplocentrum pygmaeum Cogn. in Urb., Symb. Antill. 4: 183, 1903; *ibid*, 6: 684, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 267, 1939.

Neotype: Guadeloupe. Bains Jaunes, Nez Cassé. Coll. Duss no. 4171! (BR).

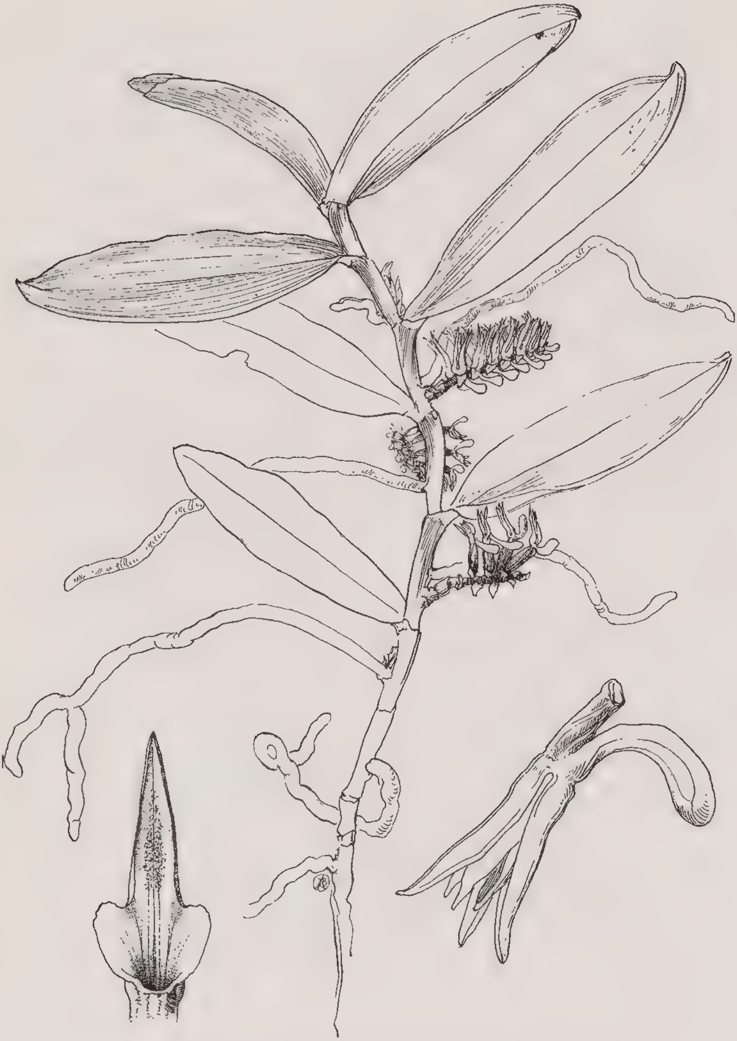


FIGURE 83. *Camplyocentrum micranthum* (Lindl.) Rolfe. Drawn by Oakes Ames and Blanche Ames Ames.

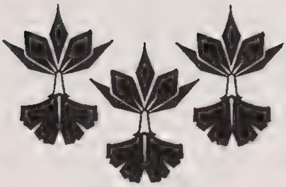
Epiphytic monopodials, up to 5 cm. long. Leaves fleshy, obliquely ovate to ovate-elliptic, obtuse, more or less retuse, basally rounded, up to 12 mm. long and 4 mm. wide. Inflorescence spicate, up to 2 cm. long, with an angled short peduncle. Flowers yellowish, very small. Sepals triangular-ovate, acute, up to 1.5 mm. long. Petals linear, up to 1 mm. long. Lip entire, ovate to ovate-triangular, acute, basally produced into an ovoid spur, up to 1.5 mm. long. Capsule 6-costate, up to 3 mm. long.

Flowers from October to January.

General Distribution: Greater Antilles, Venezuela.

Distribution in Lesser Antilles: Guadeloupe!.

Observation: Originally *Campylocentrum pygmaeum* Cogn. was based on Sintenis no. 5334 from Puerto Rico in the Berlin Herbarium. The holotype, however, was destroyed during World War II. In the Cogniaux Herbarium at Bruxelles there is the above cited specimen from Guadeloupe, which can be regarded as a neotype until duplicates of the original holotype are located.



APPENDIX

The following list includes those species which have been reported in the literature to occur in the Lesser Antilles, but in our judgment their occurence is based either on unverifiable reports or on specimens escaped from cultivation.

Bletia purpurea (Lam.) DC. in Mem. Soc. Phys. & Hist. Nat. Geneve 9:97, 1841; Gooding, Loveless & Proctor, Fl. Barbados 111, 1965.

This species was collected only once, and since then must have been lost or misplaced for we were unable to locate it. We are convinced that this species is not indigenous to the Lesser Antilles.

Brassavola subulifolia Lindl., Gen. and Sp. Orch. Pl. 115, 1831; Cogn., in Urb., Symb. Antill. 6:555, 1910.

Since no additional material has been found again in the Lesser Antilles, and because this species is rather common in Jamaica, we believe that the original report from Nevis is erroneous.

Epidendrum nutans Sw., Nov. Gen. & Sp. Pl., Prodr. 121, 1788; Cogn. in Urb., Symb. Antill. 6: 527, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 152, 1939.

This species has been reported by Stehlé on account of a collection by Balbis in 1821, without locality or number. Since *E. nutans* has not been reported from any part of the Lesser Antilles, its occurrence in our area is doubtful.

Epidendrum paniculatum Ruíz & Pav., Syst. Veg. Fl. Peru. et Chile., Prodr. 1: 243, 1789; Cogn. in Urb., Symb. Antill. 6: 530, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 160, 1939.

This species has been reported from Martinique by Cogniaux and Stehlé based on a collection in 1890 by Duss. Since *E. paniculatum* is not indigenous to either the Greater Antilles or the Lesser Antilles, the only Duss specimen, destroyed during World War II in Berlin, must have been based on cultivated material.

Maxillaria Camaridii Rchb. f. in Hamb. Gartenz. 19: 547, 1863.

Basionym: *Camaridium ochroleucum* Lindl. in Bot. Reg. 10: t. 844, 1824; Cogn. in Urb., Symb. Antill. 6: 607, 1910; Stehlé, Fl. Descr. Antill. Fr. 1: 229, 1939.

This species has been reported from Guadeloupe, based on material apparently escaped from cultivation during the late 1800s. No additional collections have been made since from any part of the Lesser Antilles. Therefore, it is definitely not indigenous in our floristic area.

Oncidium ornithorrhynchum H.B.K., Nov. Gen. et Sp. Pl. 11: 345, 1816; Cogn. in Urb., Symb. Antill. 6: 642, 1910; Kraenzlin in Pflanzenr. IV. 50, Heft 80; 200, 1922; Stehlé, Fl. Descr. Antill. Fr. 1: 244, 1939.

The report of this species from Guadeloupe is based on a specimen escaped from cultivation. This species is not indigenous in the Lesser Antilles.

Oncidium Papilio Lindl. in Bot. Reg. 11: t. 910, 1825; Cogn. in Urb., Symb. Antill. 6: 649, 1910; Kraenzlin in Pflanzenr. IV. 50, Heft 80: 170, 1922; Stehlé, Fl. Descr. Antill. Fr. 1: 249, 1939.

Stehlé reports this species from Guadeloupe based on a specimen escaped from cultivation. This species is not indigenous in the Lesser Antilles.

Pleurothallis alpestris (Sw.) Lindl., Gen. and Sp. Orch. Pl. 7, 1830; Cogn. in Urb., Symb. Antill. 6: 401, 1909; Stehlé, Fl. Descr. Antill. Fr. 1: 190, 1939.

This species has been reported by Stehlé on account of a collection by Husnot from the French Antilles, but without locality or number. Since *P. alpestris* is known only from Jamaica, its occurence in the Lesser Antilles is doubtful.

Schomburgkia Brysiana var. **minor** (Hook. f.) H. G. Jones, in Ann. Naturhist. Mus. Wien 69:58, 1966.

Plants belonging to various species of the genus *Schomburgkia* are commonly cultivated throughout the Lesser Antilles. Individual specimens occasionally may escape and become established on trees in streets and parks. Mr. H. G. Jones reports this variety from Barbados in Die Orchidee 18: 298, 1967. No *Schomburgkia* species is native to the Lesser Antilles.

Schomburgkia Parkinsoniana H. G. Jones, in Journ. Barbad. Mus. & Hist. Soc. 28: 4, 1960; Gooding, Loveless & Proctor, Fl. Barbados 114, 1965.

This is a putative hybrid, obviously escaped from cultivation. Originally the parents were listed as *S. Humboldtii* × *S. Thomsoniana.* In American Orchid Society Bulletin 32:11, 1963, Mr. Jones changed the assumed parentage to *S. Humboldtii* × *S. Brysiana.*

Schomburgkia Rechingerana H. G. Jones, in Webbia 22:227, 1967.

Syn.: *Schomburgkia Rechingerana* var. *superba* H. G. Jones in Act. Bot. Acad. Sci. Hung. 14: 67, 1968.

Mr. Jones makes the following remark in Acta Botanica Academiae Scientiarum Hungaricae 14: 67, 1968: ". . . . as the species is also known to occur in Trinidad, it is possible that the Barbados specimen may have been introduced here from that island. More recently, we have seen a specimen distributed from Guatemala under the name *Laelia tibicinis* L. O. Wms. (= *Schomburgkia tibicinis* Batem.), which appears to be an example of *S. Rechingerana.*"

O. A. M. D. G.

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